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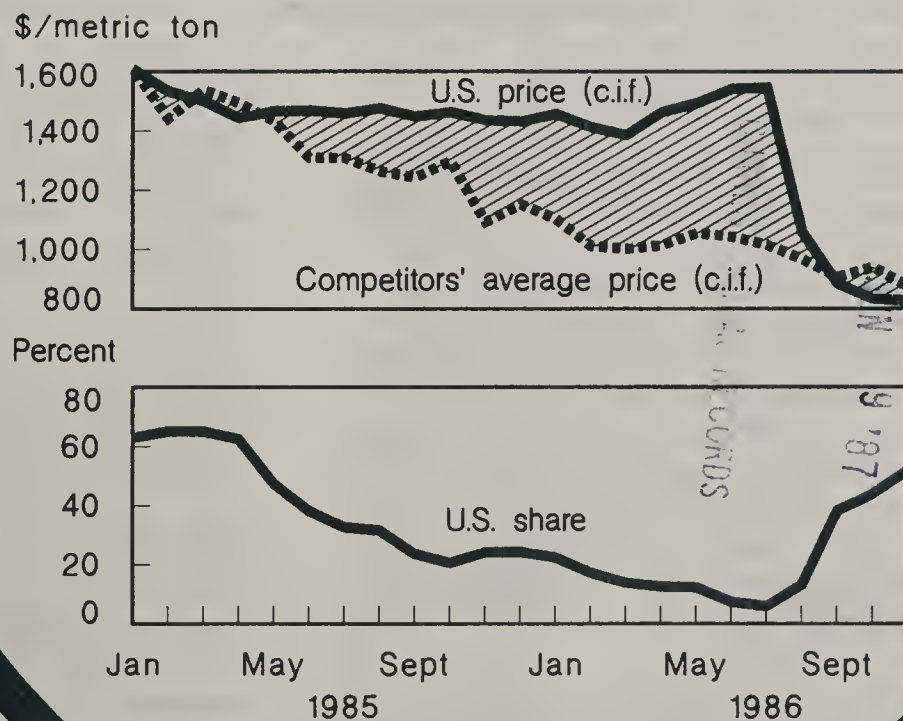
Economic  
Research  
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May 1987

# East Asia and Oceania

## Situation and Outlook Report

**East Asian Cotton Import Prices  
and U.S. Import Share**



**As Price Gap Narrows,  
U.S. Share Rises**

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Note: East Asia refers to the countries of Japan, South Korea, Taiwan, and Hong Kong. Oceania refers to Australia and New Zealand. Tons are metric; dollars are U.S., unless specified otherwise; references to years are calendar years; the U.S. fiscal year is October-September; split years, e.g. 1985/86 are July-June, unless specified otherwise. The calendar year trade numbers reported in country sections are from country trade books. They are not necessarily official USDA numbers.



## SUMMARY

*U.S. agricultural exports to East Asia* are forecast at \$8.6 billion for fiscal 1987, a 8-percent increase from the previous year and about 33 percent of total U.S. farm exports. Fiscal 1986 sales dropped 10 percent to their lowest since 1979, because of lower prices and a much-reduced U.S. share of the region's cotton and coarse grain imports. U.S. cotton sales to the region are expected to increase substantially in fiscal 1987, reflecting more competitive prices resulting from the Food Security Act of 1985. U.S. shipments of coarse grains and soybeans are expected to be much higher, helped by more competitive prices and less availability in some producing countries.

*East Asia's total 1986 import volume* increased more than 6 percent. Imports of most major farm commodities increased, led by poultry, cattle hides, cotton, and beef and veal. Increases in coarse grain and soybean imports were related to expansion in the region's livestock industries. Despite the overall increase, imports from the United States decreased 7 percent in volume and 11 percent in value; the U.S. share dropped from 38 percent in 1985 to 33 percent last year.

*Economic performance in East Asia* was mixed in 1986, with the Japanese economy slowing and the other East Asian economies accelerating. The outlook for 1987 is for somewhat slower but still strong growth in the other East Asian economies, while the Japanese economy is expected to accelerate somewhat.

*East Asian agricultural output* increased less than 1 percent, despite a 2.5-percent gain in livestock production. Crop output in 1986 increased marginally. A small decline in rice production was offset by gains in other areas. Regional rice production continued to outstrip consumption, requiring government intervention to manage large stock surpluses in Taiwan, and causing concern over possible surpluses in Japan. Regional livestock production expanded in 1986 because of rising farm-gate prices and low feed costs.

*Aggregate agricultural production* in Australia and New Zealand was steady in 1986. In Australia, gains in wheat, meats, and

wool production were offset by decreases in rice and coarse grain production. In New Zealand, crop production expanded, but livestock production was down. Total Oceanian farm output may decline in 1987. Low crop prices are discouraging grain plantings in both countries. In Australia, meat production is expected to slip as producers increase herds and reduce lambings. In New Zealand, poor weather is cutting milk production and the lamb crop will be down, but output of both wool and beef and veal is rising.

The economies of Australia and New Zealand rely heavily on agricultural export demand. Depressed world agricultural markets have forced the region's farm sectors into recession. Australian farm income fell almost a fifth in 1985/86. In New Zealand, the 1985/86 season has been described as the worst financial year on record for sheep and beef farmers, and income of dairy farmers also declined. Both countries are active supporters of the current multilateral trade negotiations, and are aggressively seeking more liberal trade to increase market access for their products.

*Australian farm income* is expected to recover slightly in 1986/87 because of strengthening meat and wool prices and good weather. The outlook remains troubled for New Zealand, because most of its export commodities face weak foreign demand, and severe inflation is raising processing and marketing costs.

Projections of East Asia's 1995 consumption, production, and trade of major agricultural commodities show that livestock products and related feeds will continue to be the main impetus to growth in the region's agricultural imports. Imports of coarse grains and soybeans are projected to increase 10.7 and 2.6 million tons, respectively; increases of over one third over the next 10 years. The United States is expected to supply over half of these projected increases. The jump reflects the strong relationship between income growth and meat consumption, and continued heavy reliance of indigenous livestock industries on imported feedstuffs. Projected annual rates of GDP growth through

1995 range from 4 to 6.5 percent across the region.

*Analysis of government assistance in Japanese agriculture shows that in 1982-84 the value of government programs and border intervention equaled about 69 percent of Japanese farm income, about 2 1/2 times the*

level in the United States and 2 times the level in the EC. Levels of assistance varied among commodities. Grain and dairy producers were the most heavily assisted. Beef, pork, soybean, and sugar producers received intermediate levels of assistance. Poultry and citrus producers were the least assisted.

## East Asia and Oceania



Note: Highlighted markets are covered in this report.



## EAST ASIA OVERVIEW

### *Japan's Economy Slows, Other East Asia's Booms*

The East Asian economies turned in a mixed performance in 1986, with the Japanese economy slowing and the other economies growing at an increased pace. The 1987 outlook is for very strong export-related expansion in South Korea and Taiwan, despite somewhat slower growth. The Japanese economy is expected to accelerate somewhat

East Asia: Selected economic indicators

	1985	1986	1987 fore- cast 1/
Gross domestic product (GDP)	Billion dollars		
Japan	1,325.4	1,959.6	2,300.0
South Korea	86.2	97.1	116.2
Taiwan	59.2	67.5	81.2
Hong Kong	33.8	37.4	41.9
Real GDP growth	Percent		
Japan	4.5	2.5	3.0
South Korea	5.2	11.8	8.6
Taiwan	4.1	8.1	7.4
Hong Kong	.6	8.7	6.9
Midyear population	Million		
Japan	120.8	121.5	122.2
South Korea	41.1	41.6	42.1
Taiwan	19.1	19.4	19.6
Hong Kong	5.4	5.5	5.5
Per capita GDP	U.S. dollars		
Japan	10,972	16,128	18,821
South Korea	2,097	2,334	2,760
Taiwan	3,095	3,487	4,146
Hong Kong	6,227	6,820	7,570
Exchange rate 2/	Local currency units to U.S. dollar		
Japan (yen)	238.5	168.5	150.0
South Korea (won)	870.0	881.1	835.5
Taiwan (New Taiwan \$)	39.9	37.7	33.8
Hong Kong (Hong Kong \$)	7.81	7.81	7.80
Consumer price inflation	Percent		
Japan	2.0	.6	1.0
South Korea	2.5	2.3	3.9
Taiwan	-.1	.7	3.0
Hong Kong	3.2	2.8	4.8

1/ Forecasts based on *Wharton World Economic Outlook*, April 1987, Philadelphia. Wharton Econometric Forecasting Associates; ERS estimates. 2/ Period average.

as it adjusts more fully to changes in currency markets, and benefits from measures to expand domestic consumption.

The mixed fortunes of the East Asian markets in 1986 were attributed in large part to the more-than-40-percent appreciation of the yen against the dollar, while the region's other currencies remained closely tied to the dollar. Japanese industrial output slowed and export volume dropped, and unemployment rose to an unprecedented 3 percent in January 1987, as South Korean and Taiwanese products became more competitive in markets like the United States.

Efforts to stabilize the yen/dollar rate in late 1986 did not succeed. The yen continued to appreciate through the first quarter of 1987. Lower yen prices for imported raw materials should help reduce manufacturing costs and, if passed through, should stimulate domestic consumption and make Japanese products more internationally competitive. Japan's prospects depend on the sustainability of economic growth in Japan's major overseas markets, stability in currency markets, and the country's success in stimulating economic growth through increased private and public spending.

Despite Japan's general economic troubles and reduced export volumes in 1986, its trade surplus rose to \$93 billion, with the United States accounting for a large share of the total. While export prices rose sharply because of the yen's appreciation, the import bill was more than 10 percent below the previous year. Japan's trade surplus is expected to decline slightly in 1987 and more significantly thereafter.

The other East Asian economies benefited from the forces that were detrimental to Japan. South Korea, Taiwan, and Hong Kong experienced robust growth, far beyond what was anticipated a year ago, as their export sectors were boosted by fortuitous developments in foreign exchange markets. Real growth in South Korea and Taiwan exceeded 8 percent, moving these markets ever closer to developed-market status. Per capita incomes in the region reached levels equivalent to some southern European countries.

Taiwan's and South Korea's exports grew more rapidly than Japan's. In Taiwan, a

East Asia's merchandise exports and imports and trade with United States, 1985-87

Country	Exports (f.o.b.)			Imports (c.i.f.)			Trade balance 1/		
	1985	1986	1987(f)	1985	1986	1987(f)	1985	1986	1987(f)
Billion dollars									
Japan	175.6	205.6	221.0	129.5	113.0	129.9	46.1	92.6	91.1
South Korea	30.3	35.8	41.8	31.1	32.3	36.2	-8	3.5	5.6
Taiwan	30.7	39.8	45.7	20.1	24.2	30.1	10.6	15.6	15.6
Hong Kong 2/	30.1	35.4	39.2	29.6	35.3	39.2	.5	.1	0
Total	266.7	316.6	347.7	210.3	204.8	235.4	56.4	111.8	112.3

Country	Exports to United States as percentage of total exports			Imports from United States as percentage of total imports			Trade balance with United States 3/		
	1985	1986	1987(f)	1985	1986	1987(f)	1985	1986	1987(f)
Percent									
Japan	37	38	39	20	23	24	39.5	51.5	55.0
South Korea	36	39	39	21	20	20	4.3	7.4	9.1
Taiwan	48	48	48	24	22	19	10.0	13.6	16.4
Hong Kong 2/	31	31	32	9	9	8	6.5	8.1	9.4
Total	37	39	39	19	20	20	60.3	80.6	89.9
Billion dollars									

(f) = Forecast.

1/ Difference between f.o.b. exports and c.i.f. imports.

2/ Includes domestic exports and re-exports.

3/ Difference between exports to United States on f.o.b. basis and imports from United States on c.i.f. basis.

SOURCE: Derived from data in country macro tables.

growing trade surplus and rising foreign exchange reserves put upward pressure on its currency and began to draw attention to closed aspects of its market. Korea's first current account and trade surplus in decades enabled the Government to reduce the nation's foreign debt, one of the largest in the world, from \$48 billion in 1985 to \$44.5 billion in 1986.

Near-term prospects for Korea, Taiwan, and Hong Kong are favorable. While growth rates are expected to settle down some, they will still be very rapid. As these markets expand and prosper, their trade and currency policies will come under more intense scrutiny by trading partners. Measures to liberalize product, financial, and currency markets will be slow and incremental, and are not likely to have much impact on the region's economies in the next several years.

### *Agricultural Output Up Slightly*

Agricultural output in the region was up less than 1 percent in 1986. Growth in the region's livestock output slowed significantly, and crop output was only fractionally higher than the year before. Livestock production has become increasingly more important in the region, and represented about one-third of total agricultural output last year.

Japanese agricultural output in 1986 was up 1 percent, with livestock production advancing 2 percent while crop output was stable. Rice production exceeded 10 million tons for the third straight year, raising some concern about the possibility of recurring surplus stock problems and drawing attention to the need for rice policy reform. Growth in livestock production slowed. Competition in some sectors—particularly poultry—was keen because of the cheaper yen price of imports.



South Korea's agricultural output grew 4 percent in 1986, the biggest increase in the region. While crop production was up only 1 percent, livestock output increased more than 8 percent on the strength of big increases in the beef and dairy sectors. Taiwan's output declined 4 percent. While livestock production was up slightly, crop production declined 6 percent because of typhoon damage and reduced area in rice and sugarcane.

#### *East Asian Farm Imports Expand 6 Percent*

A strong yen, rapid economic growth in the region, and marginal growth in agricultural production spurred a more-than-6-percent rise in the region's farm imports. All markets except Hong Kong increased their imports of major commodities. The biggest advances were in Taiwan (16 percent) and South Korea (11 percent), where the most rapid economic growth took place. Across the region, the biggest volume gains were in poultry (45 percent), cattle hides (18), fresh citrus (18), beef and veal (15), and cotton (12). The region's coarse grain and soybean imports increased 3 and 4 percent, respectively.

The United States was unable to take full advantage of the region's expanding markets, and its share of the region's farm imports fell for the second year in a row. The U.S. share dropped from 38 percent in 1985 to 33 last year, with declines in all four country markets. Among individual commodities, the United States increased its share of soybeans, beef, and pork; suffered a loss in share of corn, sorghum, barley, poultry, wheat, and cotton; and maintained its share of cattle hides.

The United States did most poorly in the coarse grain and cotton markets. Its share of the region's coarse grain imports declined from 66 percent in 1985 to 53 percent last year as competition from Argentina, South Africa, and Thailand intensified, and large sales by the PRC and Australia continued. The United States is expected to recover some lost ground this year because of reduced competition from Australia and the PRC.

The U.S. share of the region's cotton imports dropped sharply from 43 percent in 1985 to 22 percent in 1986. The decline was

East Asia's agricultural imports and exports and trade with United States, 1985-87

Country	Imports (c.i.f.)			Exports (f.o.b.)			Trade balance		
	1985	1986	1987(f)	1985	1986	1987(f)	1985	1986	1987(f)
Million dollars									
Japan	16,842	18,062	18,603	880	750	700	-15,962	17,312	-17,903
South Korea	3,117	3,239	3,400	574	641	716	-2,543	-2,598	-2,684
Taiwan	2,721	2,914	2,950	1,182	1,543	1,600	-1,539	-1,371	-1,350
Hong Kong	3,567	3,647	3,720	1,478	1,644	1,726	-2,089	-2,003	-1,994
Total	26,247	27,862	28,673	4,114	4,578	4,742	-22,133	-23,284	-23,931
Percent									
Country	Percent of total imports from the U.S.			Percent of total exports to the U.S.			Trade balance with the United States		
	1985	1986	1987(f)	1985	1986	1987(f)	1985	1986	1987(f)
Million dollars									
Japan	37	33	37	18	23	23	-6,076	-5,786	-6,722
South Korea	49	42	49	8	10	12	-1,482	-1,294	-1,583
Taiwan	53	44	51	14	11	11	-1,288	-1,124	-1,324
Hong Kong	18	16	16	9	8	8	-501	-456	-457
Total	38	33	37	12	12	12	-9,347	-8,660	-10,086

(f) = Forecast.

SOURCE: Derived from data in country macro tables.

due in large part to the relatively high price of U.S. cotton before the 1986 upland cotton program went into effect on August 1 (see figure on cover). Also, East Asian importers probably delayed purchases in anticipation of the program's lower prices. The U.S. share of this market will again exceed 40 percent in 1987. Growth prospects are good in the short-to-intermediate term but rising labor costs and textile trade restrictions cloud the longer-term future.

### *U.S. Exports Decline, Region Still No. 1*

The declining U.S. share of the region's farm imports last year did not diminish the relative importance of East Asia to American agriculture. While U.S. exports to the region declined 10 percent to \$7.9 billion, U.S. farm exports to other markets were down even more, so that the relative importance of the

region was somewhat greater. About 30 percent of all U.S. farm exports went to East Asia in fiscal 1986, more than any other region, including Western Europe. Exports in fiscal 1987 are forecast to increase 8 percent to \$8.6 billion, or 33 percent of the total. Coarse grain and cotton sales are expected to rise sharply after last year's poor performance.

There were some bright spots in an otherwise lackluster 1986. U.S. exports of beef, poultry, cattle hides, and fresh citrus set records because of rapid economic growth in the region, policy measures to widen market access, and more competitive import prices from the appreciation of the yen. Near-term prospects for processed and value-added items will continue to be good for similar reasons.

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U.S. agricultural exports to East Asia and share of total to East Asia by commodity, fiscal years 1985-1987

Commodity groups	East Asia			Share of U.S. total to East Asia		
	1985	1986	1987 forecast	1985	1986	1987 forecast
	--- Million dollars ---			----- Percent -----		
Animal and animal products	1,447	1,867	2,089	36	43	44
Beef (fresh, chilled, frozen)	372	441	509	78	82	80
Pork	28	50	65	38	62	65
Poultry meat	106	120	133	41	43	33
Tallow; inedible	60	42	33	11	10	11
Cattle hides; whole	639	872	982	63	76	76
Other animal products	242	321	367	14	15	17
Grains and feeds	3,419	2,706	2,571	26	29	32
Wheat and products	885	821	653	20	23	22
Coarse grains	2,310	1,645	1,579	34	43	56
Feeds & fodders	200	221	316	20	17	24
Fruits and preparations	464	538	599	39	43	46
Nuts and preparations	82	96	112	12	14	16
Vegetables and preparations	181	204	234	19	20	20
Oilseeds and products	1,532	1,502	1,438	25	24	24
Oilcake and meal	1	16	13	0	1	
Soybeans	1,452	1,403	1,351	37	34	36
Vegetable oils	56	62	51	6	8	9
Tobacco, unmanufactured	422	382	330	27	29	28
Cotton, excl. linters	1,043	384	947	54	57	59
Other	215	245	254	16	19	21
Total	8,801	7,924	8,575	28	30	33
--- 1,000 metric tons ---						
Wheat and products	5,862	5,984	5,950	20	22	21
Coarse grains	18,747	15,860	19,800	34	44	53
Protein meal	4	88	75	--	2	1
Soybeans	6,271	6,750	7,030	37	34	35
Tobacco	64	65	60	25	29	30
Cotton, excl. linters	706	281	893	55	58	60

-- = Less than .5 percent.

SOURCES: Bureau of the Census, U.S. Department of Commerce; and ERS forecasts.

U.S. agricultural exports to East Asia by country, fiscal years 1983-87

Country	1983	1984	1985	1986	1987 forecast
Million dollars					
Japan	5,888	6,935	5,663	5,139	5,376
South Korea	1,713	1,816	1,400	1,277	1,511
Taiwan	1,237	1,409	1,342	1,108	1,282
Hong Kong	344	407	396	400	406
East Asia	9,182	10,567	8,801	7,924	8,575
World	34,771	38,025	31,201	26,325	26,200
U.S. share to: Percent					
Japan	18.3	18.0	18.2	19.5	20.5
South Korea	4.9	4.8	4.5	4.9	5.8
Taiwan	3.6	3.7	4.3	4.2	4.9
Hong Kong	1.0	1.1	1.3	1.5	1.5
East Asia	26.4	27.8	28.3	30.1	32.7

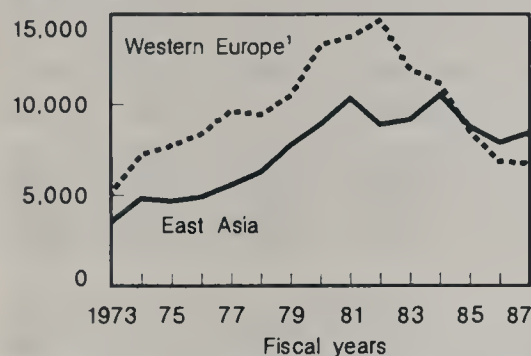
SOURCE: Bureau of the Census, U.S. Department of Commerce; ERS forecasts.



# East Asia Commodity Trade

## U.S. Farm Exports

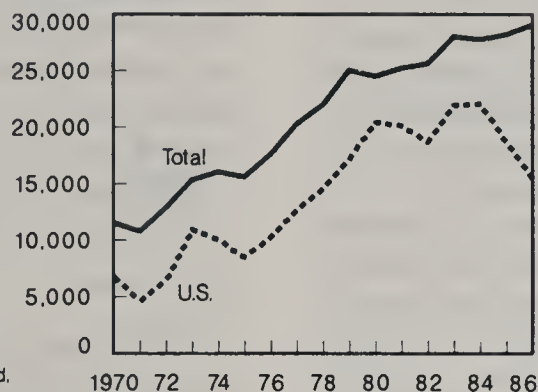
Million dollars



1/ Western Europe includes the EC-12, Austria, Switzerland, Finland, Norway, Sweden, and Iceland.

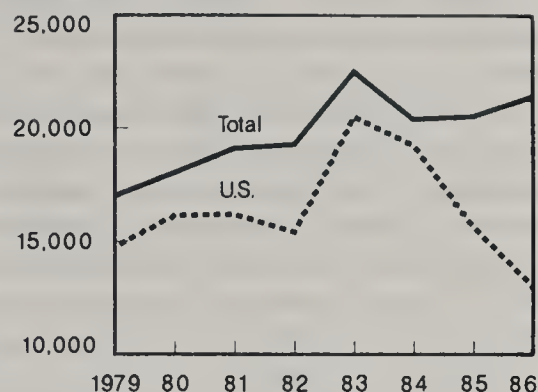
## Coarse Grain Imports: Corn, Sorghum, and Barley

Thousand metric tons



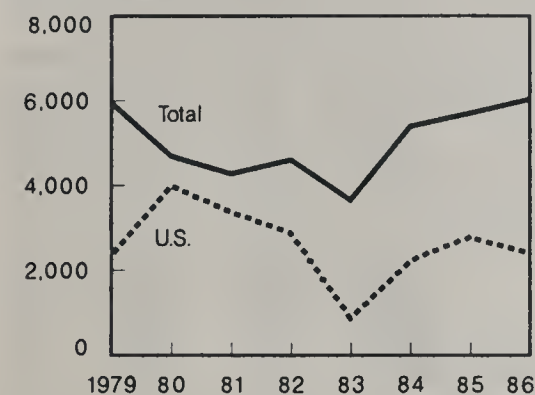
## Corn Imports

Thousand metric tons



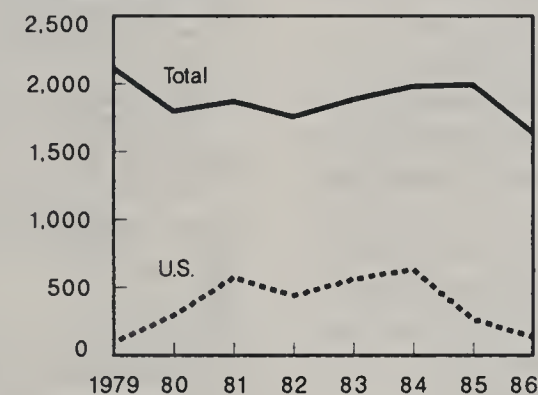
## Sorghum Imports

Thousand metric tons



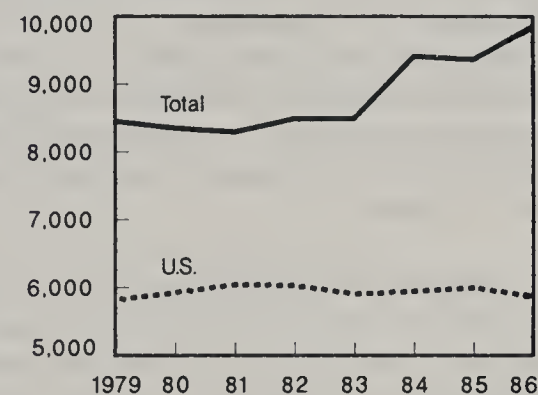
## Barley Imports

Thousand metric tons



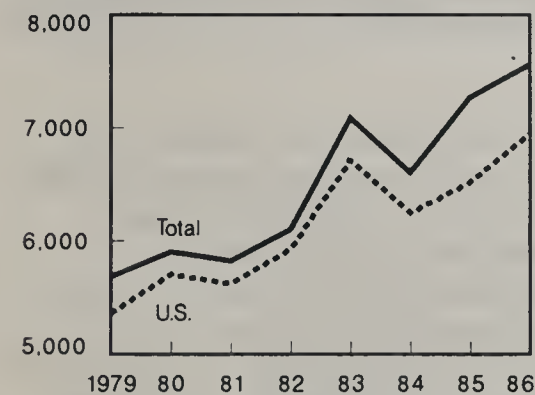
## Wheat Imports

Thousand metric tons



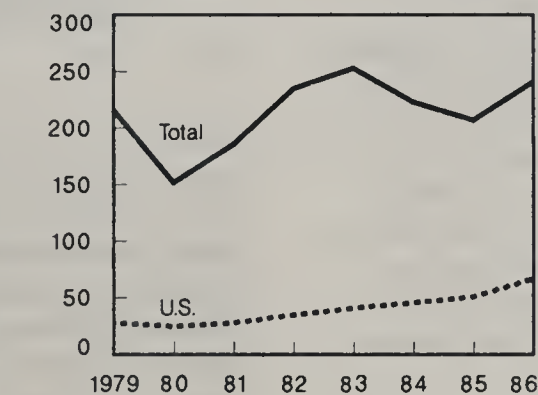
## Soybean Imports

Thousand metric tons



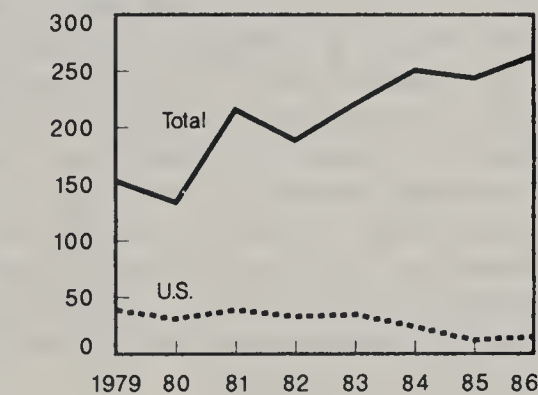
## Beef Imports

Thousand metric tons



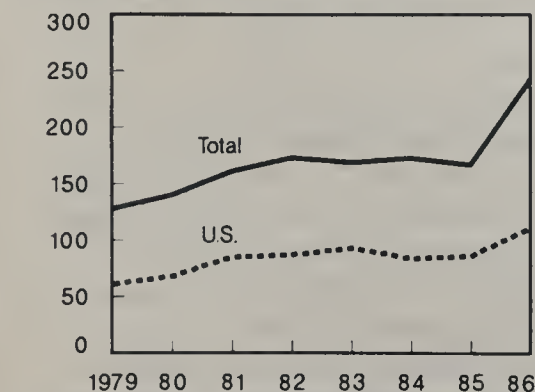
## Pork Imports

Thousand metric tons



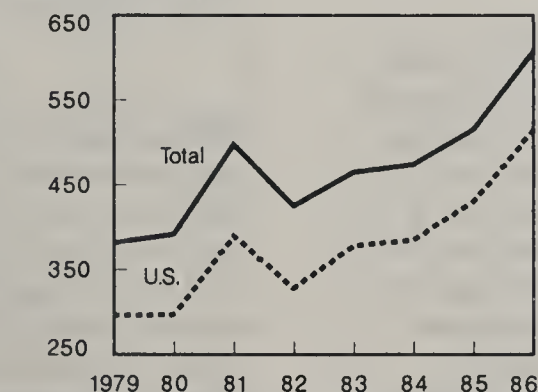
## Poultry Imports

Thousand metric tons



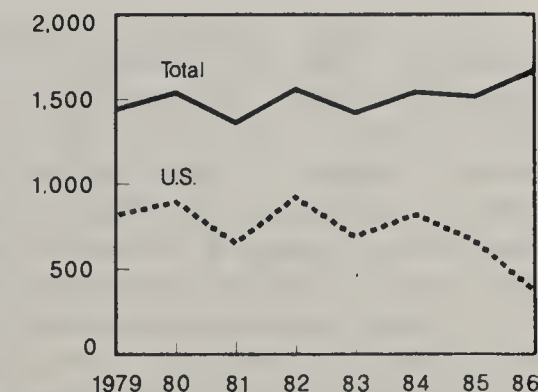
## Cattle Hide Imports

Thousand metric tons



## Cotton Imports

Thousand metric tons



The data are for calendar years and are aggregated from annual issues of: Government of Japan, Ministry of Finance, *Japan Exports and Imports: Commodity by Country*; Hong Kong Census and Statistics Department, *Hong Kong Trade Statistics*; Republic of Korea, Office of Customs Administrations, *Statistical Yearbook of Foreign Trade*; Republic of China, Inspectorate General of Customs, *The Trade of China*.



## HONG KONG

The value of Hong Kong's agricultural imports rose in 1986, after declining the year before, because of increased raw cotton purchases to support the growth in textile trade, and increased imports of high-value and processed products. Because of its limited land area, Hong Kong must import 90-95 percent of its food and raw agricultural material needs, while local production mainly complements imported supplies. After China, the United States is the largest provider of agricultural products to the colony.

The United States exported \$400 million worth of farm products to Hong Kong in fiscal 1986, up about 1 percent over fiscal 1985. Greater U.S. shipments of citrus fruit and processed products offset the drop in U.S. cotton exports. U.S. farm exports to Hong Kong are forecast to rise slightly in fiscal 1987, largely because of a modest recovery in cotton sales.

Improved prospects in 1987 for economic growth in the United States—a leading trading partner—portend continued expansion for Hong Kong's trade-dependent economy. However, textile exports to the United States will continue to be restrained by the 1986 U.S.-Hong Kong bilateral textile agreement, which limits growth in the colony's textile and apparel exports to 1 percent annually through 1991, retroactive to January 1, 1986. Local livestock raisers will continue to adjust to increasing imports of live hogs and poultry from China, and more stringent anti-pollution measures. U.S. farm exports, particularly of meat and fresh produce, are likely to face growing competition from China, other Asian countries, and the EC.

### *Hong Kong Economy Recovers*

Hong Kong's economy experienced a rebound in 1986, with growth of 8.7 percent against less than 1 percent in 1985. Domestic exports climbed 18 percent, after declining almost 6 percent the year before, helped by currency realignments. Because the Hong Kong dollar is pegged to the U.S. dollar (since 1983), the U.S. dollar's depreciation against the yen and European currencies has made Hong Kong's exports more competitive. Domestic exports to Japan, West Germany, and other European nations were especially

## Macroeconomic Indicators: Hong Kong

Item	Units	1985	1986(e)	1987(f)
<b>National accounts:</b>				
Gross domestic prod.	Bil. HK\$	263.6	291.9	327.1
GDP in 1980 prices	do.	181.2	197.0	210.6
Growth in real GDP	Percent	.6	8.7	6.9
Share of GDP				
Exports	Percent	106.95	112.89	114.39
Gov't cons.	do.	6.95	6.70	6.65
Gross fix invest.	do.	25.28	24.82	25.40
Priv. cons.	do.	64.40	63.40	64.67
<b>Int'l transact:</b>				
Merchandise exp., f.o.b.	Mill. U.S. \$	30,109	35,403	39,200
Total ag. exports	do.	1,478	1,644	1,726
Merchandise imp., c.i.f.	do.	29,631	35,339	39,200
Total ag. imports	do.	3,567	3,647	3,720
Bal. of trade 1/	do.	478	64	0
Bal. of ag. trade	do.	-2,089	-2,003	-1,994
Bal. with the U.S.	do.	6,465	8,118	9,408
Bal. of ag. trade with the U.S.	do.	-501	-454	-457
Share of tot. to U.S.	Percent	30.9	31.4	32.0
Ag. commodities	do.	8.5	8.2	8.0
Share from U.S.	do.	9.5	8.5	7.9
Ag. commodities	do.	17.6	16.2	16.0
<b>Other indicators:</b>				
Exchange rate	HKD/\$	7.81	7.81	7.80
CPI	1980=100	159.8	164.3	172.2
Growth in CPI	Percent	3.2	2.8	4.8
Population	Million	5.42	5.48	5.54
Population growth rate	Percent	1.08	1.10	1.10
Per capita GDP	U.S. \$	6,227	6,820	7,570

(e) = Estimate. (f) = Forecast.

1/ Total exports, f.o.b., minus total imports, c.i.f.

SOURCE: Hong Kong 1986, A Review of 1985, Hong Kong Government; Census and Statistics Dept., Hong Kong In Figures, 1987; Wharton World Economic Outlook, April 1987; ERS estimates.

strong in 1986. But exports to China, Hong Kong's leading overall trading partner in 1985, dropped off as a result of China's tighter foreign-exchange controls. Growth in re-exports (goods assembled in Hong Kong of components made elsewhere) eased to 16 percent, after 26-percent growth the previous year. Imports rose an estimated 19 percent because of stronger consumer demand, leaving the colony with a small visible trade surplus for the second consecutive year.

Inflation remained at a low 2.8 percent, helped by reduced import prices despite a weaker currency. Growth in private capital spending was disappointing given the stronger export activity, apparently restrained by recurrent fears about U.S. protectionism and re-unification with China in 1997. The property market remained active, however, aided by increases in real incomes, stronger export performance, and low interest rates.

Hong Kong's economy should remain robust throughout 1987 if exports continue their buoyant pace. With the Hong Kong dollar pegged to the depreciating U.S. dollar, Hong Kong's exports should continue to be competitive in countries with strong currencies, such as Japan and West Germany. So far, Hong Kong has resisted U.S. efforts to strengthen its currency against the U.S. dollar; the U.S. dollar-HK dollar link will probably remain in place for the near future.

#### *Cotton Imports Increase*

Raw cotton imports jumped 28 percent from the year before, largely because of increased textile activity. However, U.S. cotton's share plunged to 1 percent because of its uncompetitive prices. China dominated the market, as in the previous year, with a 55-percent share, while Pakistan retained its share of nearly 30 percent. The U.S. share is expected to improve this year because of more competitive prices, reduced supplies of low-grade Chinese cotton, and delayed shipments from Pakistan.

Hong Kong's rice imports were lower, following the trend of declining per capita consumption, but wheat imports were steady. The U.S. share of Hong Kong's wheat imports fell off slightly from last year. Wheat flour imports rose 22 percent, helping to satisfy the rising demand for wheat-based products. Imports of citrus fruit grew 6 percent from 1985, with the United States supplying 77 percent. Hong Kong residents enjoy one of the world's highest levels of per capita fruit consumption. Tobacco imports fell steeply, probably because of a decline in local cigarette production, but the U.S. share increased to over half. U.S. tobacco exports benefited from lower U.S. prices and greater local demand for cigarette brands using a high share of U.S. leaf.

In late 1986, the Hong Kong Government decided to impose a total ban on tobacco advertising on television and radio by 1990, to be implemented in stages, and is considering extending the ban to all media (including printed media and billboards). The Government's antismoking efforts are believed

Hong Kong's imports of principal agricultural commodities and the U.S. share

Commodity	Total volume		U.S. volume		U.S. share	
	1985	1986 1/	1985	1986 1/	1985	1986 1/
	1,000 tons				Percent	
Corn	250	230	--	--	0	0
Sorghum	5	5	--	--	0	0
Rice	378	360	--	--	0	0
Soybeans	25	28	--	1	0	2
Raw cotton	199	255	14	2	7	1
Wheat	119	120	106	104	89	87
Wheat flour	77	94	--	2	0	2
Sugar	146	157	--	--	0	0
Coffee beans	17	9	4	--	20	2
Pork	58	56	--	--	0	0
Beef	29	30	1	2	4	5
Poultry meat (incl. live)	113	122	39	34	34	27
Whole cattle hides	13	20	3	3	22	17
Tobacco	18	11	5	6	27	51
Citrus fruit	159	169	123	129	78	77
Bananas	35	39	--	--	0	0
	Million dollars				Percent	
Total agricultural imports	3,567	3,647	627	589	18	16

-- None or negligible.  
1/ Estimate.

SOURCE: Hong Kong Census and Statistics Dept., Hong Kong Trade Statistics, 1985 December and 1986 November issues.



to have had a much smaller effect on tobacco consumption than the heavy duties imposed on unmanufactured tobacco and cigarettes.

### *Livestock Sector Continues To Adjust*

Hong Kong's livestock and poultry raisers continued to face competition from live animal imports from China, which benefits from cheaper land and labor costs. Total poultry production rose slightly. While chicken raising remains the most important activity in Hong Kong's poultry sector, raising of other poultry, such as ducks and pigeons, is becoming more important. Local egg production was up marginally. The colony imports most of its eggs, and China is by far the largest supplier. Production of domestically-raised pork stayed at 1985's level, while Hong Kong continued to import many live hogs from China. Local cattle production remained very small.

Poultry imports (including live birds) rose 8 percent over 1985 because of strong demand. Although pork is the most popular meat, consumption of poultry meat has continued to grow for several reasons: low prices relative to pork and beef; a ready supply of low-priced chickens from China; increasing acceptance and popularity of pigeon; growing appeal of frozen and other convenience foods; and expansion of fast food outlets. The U.S. share of Hong Kong's poultry imports declined because of greater imports of live birds from China. The United States and Japan remained the largest suppliers of frozen poultry meat. Imports of pork fell off slightly, and imports of beef edged up marginally. China is the predominant supplier of both pork and beef to the colony.

### *Textile Sector Active*

After 1985's slump, Hong Kong's textile sector was much more active than anticipated, a result of currency realignments which made Hong Kong's textile exports more competitive. Apparel exports to West Germany, the United Kingdom, and Japan were especially vigorous. Exports to the United States--Hong Kong's major market--grew substantially as well. Consumption and imports of raw cotton rose during the August 1985-July 1986 marketing year, after declining during the same period

the year before. Consumption is expected to continue expanding this year, given prospects for higher economic growth in the United States and continued competitiveness of the colony's textile exports.

In 1986, the United States and Hong Kong signed a 6-year bilateral textile agreement which limits growth in exports to the United States to an average 1 percent annually, and includes quotas on products made from fibers such as silk, ramie, linen, and jute. Although

U.S. agricultural exports  
to Hong Kong

Commodity groups	Fiscal years		
	1985	1986	1987(f)
Million dollars			
Animal & animal prods.	71	71	72
Beef	5	6	9
Pork	1	1	1
Poultry meat	42	39	35
Cattle hds; whl.	3	3	6
Other	20	22	21
Grains & feeds	25	26	22
Wheat & prods.	15	15	11
Feeds & fodder	8	8	8
Fruits & preps.	120	134	135
Nuts & preps.	4	4	7
Vegetables & preps.	31	36	38
Oilseeds & prods.	12	14	4
Veg. oils & waxes	11	14	4
Tobacco, unmanuf.	30	25	34
Cotton, excl. linters	31	0	14
Other	72	90	80
TOTAL	396	400	406
1,000 tons			
Beef	1	1	2
Pork	1	--	--
Poultry meat	42	38	35
Cattle hds; whl. (1,000 no.)	104	101	150
Wheat & prods.	97	104	100
Veg. oil & waxes	11	15	4
Tobacco, unmanuf.	5	5	7
Cotton, excl. linters	22	--	11

-- = Less than 500 tons.

SOURCE: Bureau of the Census, U.S. Department of Commerce; ERS forecasts.



restricting potential growth, the agreement will provide Hong Kong's textile industry some stability and protection from future shifts in U.S. trade policy.

#### *U.S. Farm Exports Expand*

U.S. farm exports to Hong Kong in fiscal 1987 are forecast to expand slightly to \$406 million. U.S. cotton exports are expected to show a modest increase from last year's dismal performance because of more competitive U.S. prices and potentially reduced availability of Chinese cotton. U.S. tobacco exports are forecast to be up slightly, and cattle hide exports may increase substantially. However, U.S. poultry sales are projected to decline because of greater competition from other suppliers, such as the EC, China, and Brazil. [*Lois A. Caplan (202) 786-1611*]

### JAPAN

Japan's agricultural output grew 1 percent in 1986, on the strength of a third straight abundant rice crop and modest expansion in the livestock sector. Japan harvested a bumper wheat crop as well, but barley production declined. Livestock production expanded slightly by 2 percent. Increased competition from imports offset benefits from lower feed prices. A higher-valued yen and lower tariffs on poultry meat encouraged substantially greater imports of livestock products and live cattle. The U.S. share of Japan's beef imports continued to increase in 1986, to 35 percent.

Production of formula feed grew around 2 percent, mirroring developments in the livestock sector. Consumption of coarse grain rose marginally. While corn remained the most important ingredient in formula feed, feed manufacturers increased their use of sorghum because of favorable prices. Japan's imports of feed grains expanded slightly, but imports of soybeans fell. The U.S. share of Japan's feed grain imports dropped for the second consecutive year, to 54 percent, because of competition from China, Argentina, and South Africa.

Despite setbacks in the domestic spinning industry, raw cotton imports grew 2 percent in 1986. Japan took advantage of a

higher-valued currency and lower world cotton prices. However, the U.S. share sank to 29 percent because of competition from other suppliers.

Rice production in 1987 is expected to decline because of an increase in rice paddy area planted to other crops. Wheat and barley output is also forecast to be lower. Livestock production will be mixed, affected by competition from livestock product imports. Output of formula feed may expand modestly. Growth in consumption and imports of feed grains will be slight. Soybean imports may be up somewhat. U.S. farm exports to Japan in fiscal 1987 are forecast to rise to \$5.4 billion. Increased shipments of coarse grains and cotton will account for most of the growth in value.

#### *Economic Growth Slows*

Japan's economic growth slowed to 2.5 percent in 1986, compared with 4.5-percent growth the previous year, as the yen's sharp appreciation hurt export-oriented industries. The higher-valued yen made it harder to compete in foreign markets (particularly against Taiwan, South Korea, and Hong Kong, whose currencies have not appreciated much against the dollar), and export volumes and earnings declined. To some extent, expansion in the nonmanufacturing sector helped to counteract weak export performance.

Despite the fall-off in exports, Japan's current account surplus reached \$86 billion, a result of a rise in export value (expressed in dollars) and a 13-percent drop in import value attributed to lower crude oil prices. Japan's trade surplus with the United States expanded to \$51.5 billion from \$39.5 billion in 1985.

Consumer prices rose less than 1 percent in 1986, the smallest increase in 18 years, mainly because of the stronger yen and lower oil prices. Wholesale prices declined 9.7 percent, indicating that not all the exchange rate gains were passed along to consumers. Unemployment averaged 2.8 percent in 1986, and climbed to a record 3.0 percent in January 1987, reflecting the ongoing recession in the manufacturing industries. Housing starts rose 10.4 percent from 1985 to 1.36 million units, the second highest level ever, stimulated by lower interest rates.



Since the September 1985 Group of Five meeting to lower the value of the dollar against major currencies, the dollar has fallen more than 40 percent against the yen (from 250 to 140), hitting a post-war low of 140 yen to the dollar in April 1987. Despite intervention by the Japanese and U.S. central banks, the dollar has continued to slide since January 1987.

Concern over the yen's rapid appreciation prompted Japan's Finance Minister Miyazawa to meet with U.S. Treasury Secretary Baker in October. The two agreed to pursue closer economic cooperation, especially in exchange rate stability. Another Baker-Miyazawa meeting took place in January. Finance officials from the United States, France, West Germany, Britain, Japan, and Canada convened in Paris on February 21 and 22, 1987, to discuss greater policy coordination to

stabilize exchange rates. Japan promised to stimulate domestic demand in exchange for U.S. agreement to help prevent sharp falls in the dollar. The Group of Six nations plus Italy met again in Washington on April 8, and reaffirmed a commitment to try to stabilize exchange rates around their current levels.

The Japanese Government took several actions during the year to help stimulate its domestic economy. The Central Bank lowered the discount rate 4 times (each time by .5 percent) in 1986, and again in February 1987 to the current level of 2.5 percent. In September 1986, the Government announced a 3.6-trillion-yen (\$21 billion) package of reflationary measures, centering on additional investments in public works, housing, and plant and equipment by the electric, gas, and telecommunications industries. The Government also revealed a tax reform program which would lower individual and corporate tax rates, but incorporate a controversial new sales tax. Consistent with its commitments made in Paris, the Japanese Government has decided to take strong measures to stimulate the economy through the national budget, and to accelerate public works expenditures.

The Japanese Government foresees somewhat higher economic growth of 3.5 percent in fiscal 1987 (beginning April 1), compared with fiscal 1986. The Government is counting on expansion in domestic demand to lead economic growth, while it expects the trade surplus to decline. According to the Government outlook, consumer spending will increase 1.9 percent; housing starts 0.4 percent; and capital investment 1.2 percent over fiscal 1986.

### *Rice and Tobacco Highlight Trade Problems*

In the agricultural trade area, several U.S.-Japan bilateral issues came to the fore. In September, the American Rice Millers Association submitted a petition (under Section 301 of the 1974 Trade Act) against Japan's almost total ban on rice imports. The U.S. Government rejected the petition, but will urge Japan to discuss its rice policy in the new round of multilateral trade negotiations.

Macroeconomic indicators: Japan

Item	Units	1985	1986(e)	1987(f)
<b>National Accounts:</b>				
Gross domestic prod.	Tril. yen	316.1	330.2	345.0
GDP at 1980 prices	do.	290.2	297.5	306.4
Growth in real GDP	Percent	4.5	2.5	3.0
Share of GDP				
Exports	Percent	17.20	15.89	15.65
Gov't.cons.	do.	9.34	9.63	9.68
Gross fix invest.	do.	30.05	31.17	31.51
Priv. cons.	do.	55.85	56.14	56.91
<b>Int'l Transact:</b>				
Merchand. exp., f.o.b.	Mil. U.S. \$	175,638	205,558	221,000
Total ag. exports	do.	880	750	700
Merchand. imp., c.i.f.	do.	129,539	112,990	129,939
Total ag. imports	do.	16,842	18,062	18,603
Bal. of trade 1/	do.	46,099	92,568	91,061
Bal. of ag. trade	do.	-15,962	-17,312	-17,903
Bal. with the U.S.	do.	39,485	51,480	55,005
Bal. of ag. trade with the U.S.	do.	-6,076	-5,786	-6,722
Share to U.S.	Percent	37	38	39
Ag. commodities	do.	18	23	23
Share from U.S.	do.	20	23	24
Ag. commodities	do.	37	33	37
<b>Other Indicators:</b>				
Exchange rate	Yen/\$	238.5	168.5	150.0
CPI	1980=100	114.6	115.3	116.4
Growth in CPI	Percent	2.0	0.6	1.0
Population	Million	120.8	121.5	122.2
Population growth rate	Percent	.61	.60	.60
Per capita GDP	U.S. \$	10,972	16,128	18,821

(e) = Estimate. (f) = Forecast.

1/ Total exports, f.o.b., minus total imports, c.i.f.

SOURCE: IMF, *International Financial Statistics*; Wharton, *World Economic Outlook*, April 1987; Ministry of Finance, Japan; ERS estimates.

After a year of talks, Japan agreed in October to further open its market to imported tobacco products by, among other steps, removing the tariff on manufactured tobacco in April 1987. As a result, the imported market share, now about 3.5 percent, is expected to increase substantially. U.S. leaf exports would benefit if Japan's tobacco industry increases the content of higher-quality U.S. leaf in its cigarettes, to compete with imports. On the other hand, U.S. exports could decline as imported tobacco products gain a larger share of the market.

The United States has continued to press Japan to abolish quota restrictions on 12 categories of agricultural products, and in March 1987 a GATT panel was established to settle the dispute. A 2-year interim agreement covering quota levels expired in April 1986, and the existing levels were left unchanged. The multinational panel is expected to make a ruling or recommendations regarding the Japanese restrictions by the end of 1987. The Ministry of Agriculture, Forestry, and Fisheries plans to pursue bilateral consultations apart from the GATT process.

The United States held a series of bilateral discussions on possible changes in Japan's tax and tariff barriers to imported alcoholic beverages, which resulted in a reduction of the wine duty. The U.S. has concurrently supported the EC's attempt to gain improved access to Japan's market through GATT consultations. In addition, the United States continued to press Japan to lower tariffs on certain items such as grapefruit (25 percent, December-May) and chocolate (20 percent). The United States will urge Japan to liberalize its import restrictions on beef and oranges by the expiration of the current U.S.-Japan agreement in March 1988.

#### *Abundant Rice Crop Builds Stocks*

Japan harvested an abundant rice crop in 1986 for the third year in a row. Above-normal yields boosted output to 10.6 million tons, just under 1985's bumper crop, despite slightly less area harvested. The ample harvest and declining consumption will cause rice stocks to reach an estimated 1.7 million tons by the end of the current marketing year (October 1987). In an effort to

#### Agricultural production in Japan

Commodity	1984	1985	1986	1986/85
	1,000 tons			Percent
Rice	10,809	10,612	10,599	99
Pork	1,424	1,532	1,550	101
Vegetables	13,500	13,600	13,500	99
Eggs	2,130	2,141	2,177	102
Milk	7,138	7,380	7,525	102
Broilers	1,183	1,270	1,275	100
Beef and veal	535	555	559	101
Citrus fruit	2,672	3,288	3,500	106
Tobacco	135	116	125	108
Indices of production	1976-78 = 100			
Crops	96	96	96	100
Livestock	127	133	135	102
Total				
agriculture	100	100	101	101
Per capita				
agriculture	94	95	94	99

NOTE: Commodities shown are in order of importance in 1986 gross agricultural income and represent about 90 percent of total agricultural output.

SOURCES: Economic Research Service, USDA, World Indices of Agricultural Production, 1976-85 and Foreign Agricultural Service, USDA, Annual Situation Report for Japan.

bring stocks more in line with its target of 1.5 million tons, the Ministry of Agriculture, Forestry, and Fisheries (MAFF) has called for a 25-percent expansion in riceland diversion area to 700,000 hectares in 1987, from 560,000 last year.

At the same time, MAFF will lower subsidy payments for diverting riceland to alternative crops, such as wheat, in order to lessen budgetary outlays. In another move to trim costs, the Food Agency, which controls the purchase, sale, and storage of rice, wheat, and barley, intends to store no more than 1.5 million tons of rice. The agency will also ask cooperative organizations to hold any excess amounts.

The Government's purchase price for the 1986 rice crop was left unchanged from 1985's 311,133 yen per ton (\$2,007 at Y155 = \$1), after intense lobbying by agricultural cooperatives during the summer pressured the Government to retreat from a proposed reduction. There was strong public criticism of the cooperatives' influence over the



Government's price-setting, and the purchase price for this year's crop will probably be lowered for the first time.

### *Wheat Production Up; Barley Output Declines*

Japan's wheat production reached 876,000 tons in 1986, up slightly from last year's bumper harvest and the largest crop in 18 years. Above-average yields and a 5-percent increase in area contributed to the large outturn. Wheat area is expected to increase in 1987 as a result of the planned expansion in diversion area, but output is forecast to decline because of more normal yields. Barley production declined to 344,000 tons in 1986, 9 percent below 1985, because of smaller area and lower yields. Barley area and production are expected to decline in 1987 as producers continue to shift into more profitable crops, such as vegetables.

For the first time since 1959, the government lowered wheat resale prices. Prices were lowered an average 5 percent, effective February 5, 1987. The reductions represent much less than the drop in imported (c.i.f.) wheat prices arising from the strong yen and lower world prices for wheat. These lower prices are not likely to encourage greater consumption, since most of the reduction will benefit millers and bakers and may not reach end consumers. The government's purchase price for wheat in 1986 was reduced 1.16 percent to 182,717 yen per ton (\$1,179), because of the government's desire to cut budget expenditures and keep wheat prices in line with rice prices, which are likely to be reduced this year.

Wheat consumption during July 1985/June 1986 declined slightly from the previous year, and is expected to stay around the same in 1986/87. Over the past decade, annual per capita wheat consumption has remained at 32 kilograms.

Wheat imports in 1986 increased slightly to 5.6 million tons. Although domestic production has been rising, it still represents only about 14 percent of total consumption, and imports must fill the gap. The United States, Canada, and Australia are the major suppliers. The U.S. share has remained stable at between 55 and 60 percent, despite recent complaints about quality problems. Japan

### Farm and consumer food prices in Japan

Commodity	1984	1985	1986	1986/ 1985
	Yen/kilogram			Percent
Farm prices 1/				
Rice (brown)	311	311	311	100
Wheat	185	185	183	99
Barley (common)	167	167	165	99
Eggs	231	267	244 2/	91
Pork	432	362	360 2/	99
Milk	100	99	96 2/	97
Poultry	252	233	217 2/	93
Beef 3/	1,002	1,056	1,099 2/	104
Tobacco 4/	1,827	1,795	NA	—
Citrus 5/	167	146	NA	—
Potatoes	67	52	75 6/	144
Onions	97	27	61 6/	226
Tea (crude)	1,728	1,507	1,445 6/	96
1985 = 100				
Consumer price indices				
Food	98	100	100 7/	100
Meats	101	100	99 7/	99
Fish	98	100	101 7/	101
Fruits	90	100	95 7/	95
Vegetables	104	100	100 7/	100

- 1/ Japan fiscal years.  
2/ Average price during April–November 1986.  
3/ Dairy steer.  
4/ Native tobacco.  
5/ Mikan orange.  
6/ Average price during April–September 1986.  
7/ Estimated from January–October monthly indices.

SOURCES: Foreign Agricultural Service, USDA, Agricultural Situation Report; Japan's Ministry of Agriculture, Forestry and Fisheries, Monthly Statistics; and Management and Coordination Agency, Monthly Statistics of Japan.

maintains informal supply arrangements with Canada and Australia on a yearly basis. The Food Agency's 1986 agreement with Australia called for 900,000 tons plus some "feed" wheat, and its agreement with Canada was for 1.2 million tons. Canada and Australia agreed to supply similar amounts of wheat to Japan in 1987.

### *Livestock Production Increases Slightly*

Japanese livestock production in 1986 increased slightly from the previous year, after almost continuous expansion over the past decade. Increased competition from imported livestock products counterbalanced gains from cheaper feed prices. Beef and veal

Japan: Government support prices

Commodity	Unit	1984	1985	1986
Yen				
Rice, Gov't purchasing price	60 kg.	18,668	18,668	18,668
Rice, Gov't selling price	60 kg.	17,673 1/	18,327 1/	18,598 1/
Wheat, Gov't purchasing price	60 kg.	11,092	11,092	10,963
Wheat, Gov't selling price	60 kg.	4,135	4,135	4,135 2/
Barley, Gov't purchasing price	50 kg.	8,366	8,366	8,229
Barley, Gov't selling price	50 kg.	2,912	2,912	NA
Soybeans, standard price	60 kg.	17,210	17,210	16,925
Pork, upper stabilization price 3/	1 kg.	780	780	760
Pork, lower stabilization price	1 kg.	600	600	540
Beef, upper stabilization price of Wagyu beef	1 kg.	1,820	1,820	1,820
Beef, upper stabilization price of dairy beef	1 kg.	1,455	1,455	1,420
Beef, lower stabilization price of Wagyu beef	1 kg.	1,400	1,400	1,400
Beef, lower stabilization price of dairy beef	1 kg.	1,120	1,120	1,090
Milk for processing, guaranteed price	1 kg.	90.07	90.07	87.57

NOTE: NA = not available.

1/ As of February 1.

2/ Lowered to 3,886 as of February 5, 1987.

3/ Livestock support prices are for the April-March Japan fiscal year.

output was up less than 1 percent in 1986 at 559,000 tons.

Growth in production was marginal because of reduced supplies of Wagyu cattle (the native breed), although this was offset by increased slaughter of dairy cattle. Pork production expanded slightly to 1.55 million tons. In response to a sharp drop in market prices in early October, MAFF asked farm cooperatives and meat processor organizations to voluntarily keep the equivalent of about 50,000 hogs off the market. A similar intervention program was implemented in late 1985, covering the equivalent of 290,000 hogs.

After 7-percent growth in 1985, output of poultry meat was up only marginally as producers adjusted to a 70-percent increase in

imports, which caused market prices to fall. Egg production expanded nearly 2 percent, stimulated by lower feed costs. Milk output rose an estimated 2 percent, curtailed by MAFF guidance to producers to reduce milk output by accelerating the culling of old cows. For the first time since their introduction, MAFF decided to lower support prices for dairy beef, pork, and milk for processing in fiscal 1986 (April-March), to better reflect declining production costs. MAFF will lower support prices further this fiscal year.

A decline in retail prices for some livestock products encouraged greater consumption, especially of pork and poultry meat. In an effort to pass along exchange rate gains to consumers, MAFF instructed the



Livestock Industry Promotion Corporation (LIPC), which controls the purchase and sale of domestic and imported beef, to lower resale prices (to wholesalers) of imported beef by 12.5 percent. However, because of the maintenance of price support schemes for beef and dairy products, retail prices for these items do not reflect the declines in import prices resulting from the yen's appreciation.

### *Livestock Imports Expand*

Japan's imports of livestock products jumped in 1986, because of strong demand, adjustments in domestic production, and the higher-valued yen. Beef and veal imports rose 19 percent to 179,000 tons (product weight), tripling the 9,000-ton yearly increase called for in Japan's 1984 agreement with Australia.

The Government allowed in more beef imports, which are subject to quota, to dampen high domestic beef prices. The U.S. share of Japan's beef imports climbed to 35 percent from 31 percent in 1985, reflecting Japan's commitment to increase imports of high quality (grain-fed) beef 6,900 tons a year through March 1988.

Pork imports expanded 9 percent to a record 208,000 tons (product weight). The U.S. share edged up only slightly because of an inflow of pork from Taiwan, whose share expanded to 39 percent, from 35 percent in 1985. Although still a major supplier, Denmark's share of Japan's pork imports slipped to 38 percent in 1986, from 41 percent the previous year.

Japan's purchases of poultry meat surged in 1986 to 180,000 tons because of the stronger yen and lower tariffs. Tariffs on boneless chicken meat were reduced to 14 percent from 18 percent; and tariffs on bone-in chicken were lowered to 11.3 percent; effective January 1987, this will be cut to 10 percent. Although the volume of imports from the United States reached a record, the U.S. share declined to 43 percent in 1986 from 46 percent the year before, because of gains in market share by Thailand and China. Brazil's share slid to 9 percent in 1986 from 12 percent the year before, as domestic beef supply problems caused consumers to substitute chicken meat, leaving less available for export.

Japan's imports of selected beef and citrus products and the U.S. share

Commodity	Total volume		U.S. volume		U.S. share	
	1985	1986	1985	1986	1985	1986
	1,000 tons				Percent	
Beef & veal, fr., chilled, fzn. (under quota)	151	179	47	63	31	35
Beef offals	75	89	61	74	81	84
Fresh citrus:						
Oranges	112	117	110	116	98	99
Lemons & limes	114	126	112	125	98	99
Grapefruit	121	182	111	177	92	97
	Million dollars					
Quota items:						
Beef & veal, fr., chilled, fzn.	464.6	554.1	180.8	239.4	39	43
Oranges	91.4	98.1	90.4	96.9	99	99
Orange juice	40.7	19.9	3.5	2.4	9	12
Grapefruit juice	12.1	13.5	10.1	11.8	84	87
Total	608.8	685.6	284.8	350.5	47	51

SOURCE: Japan's Ministry of Finance, *Japan Exports and Imports: Commodity by Country*, 1985 and 1986 December issues.

Japanese demand for live cattle imports rose dramatically in 1986, as a result of the yen's appreciation and a stronger cattle and beef market. Imports of live cattle (feeder and slaughter) more than doubled from 1985 to an estimated 35,000 head. Feeder cattle can be brought in duty-free within the 10,000-head quota (MAFF plans to double this to 20,000 head beginning Japanese fiscal 1987), but beyond that a duty of 45,000 yen per head is levied; slaughter cattle (over 300 kilograms) are taxed 75,000 yen per head. Most of Japan's live cattle imports arrive from Australia because of cheaper export prices (especially for feeder calves), greater appreciation of the yen against Australia's currency, and low transportation rates. At present, the major impediment to greater live cattle imports is a lack of adequate quarantine space, although some additional capacity is planned for 1988.

### *Animal Feed Output Up Slightly*

Production of formula feed expanded less than 2 percent during January-August 1986 from the same period in 1985, indicating sluggish growth in the livestock sector. Output of feed for layers increased 2 percent; for broilers, 1 percent; for swine, 1 percent; and for dairy and beef cattle, 4 percent. Because of cheaper ingredient costs, livestock feed prices have declined, although not as



sharply as the drop in yen prices for imported feed materials, such as corn and soybeans.

Zennoh, Japan's largest feed manufacturer, reduced feed prices during 1986, and has decided to keep prices for January-June 1987 delivery at 53,300 yen per ton (\$344 at Y155 = \$1), unchanged from the last quarter of 1986. However, it is unlikely that lower feed prices will lead immediately to a significant increase in feed use, because of the constraints on expansion in Japan's livestock sector.

#### *Coarse Grain Consumption Up Marginally*

Japanese consumption of coarse grains, the major ingredient in animal feed, rose marginally during October 1985-September 1986, to 21.5 million tons. Total consumption of corn (mostly feed use and some industrial use) increased a little over 1 percent, while sorghum use grew almost 7 percent. Barley consumption declined 11 percent because of relatively high prices. The corn-ingredient ratio in formula feed production declined to 42.9 percent in 1985/86 from 43.4 percent the

previous year, while the sorghum-ingredient ratio rose to 19.3 percent from 18.5 percent, reflecting favorable sorghum prices. Use of corn in feed production is projected to increase this year because of more favorably priced U.S. corn relative to sorghum. Sorghum prices have risen because of anticipated reduced supplies in Argentina.

Japan used about 246,000 tons of Thai tapioca in feed production in 1985/86, around 100,000 tons less than the year before, which displaced a similar amount of such grains as barley, rye, and oats. Imports of tapioca are expected to be down sharply this year because of higher prices.

Japanese imports of coarse grains in 1986 rose an estimated 1 percent to 21.3 million tons. The U.S. share fell for the second straight year to 54 percent, from 65 percent the previous year. The U.S. share of Japan's corn imports dropped to 63 percent, from 77 percent in 1985, because of continued heavy purchases from China (2.7 million tons) and large purchases from Argentina and South Africa (about 1.3 million tons from each). The

Japan's imports of principal agricultural commodities and the U.S. share

Commodity	Total volume		U.S. volume		U.S. share	
	1985	1986	1985	1986	1985	1986
	1,000 tons				Percent	
Corn	14,225	14,653	10,970	9,244	77	63
Sorghum	4,793	4,976	2,571	2,079	54	42
Barley	1,661	1,363	140	61	8	4
Soybeans	4,910	4,817	4,345	4,332	88	90
Raw cotton	681	695	276	201	41	29
Wheat	5,510	5,620	3,232	3,241	59	58
Sugar	1,916	1,813	--	--	0	0
Coffee beans	231	243	--	--	0	0
Beef and veal	151	179	47	63	31	35
Pork	190	208	12	15	6	7
Poultry meat	105	180	48	77	46	43
Whole cattle hides	204	199	179	172	88	86
Tobacco	61	68	39	44	64	65
Citrus fruit	346	426	333	418	96	98
Bananas	680	765	--	--	0	0
	Million dollars				Percent	
Total agricultural imports	16,842	18,062 1/	6,237	5,960 1/	37	33 1/

-- None or negligible.

1/ Estimate.

SOURCE: Japan's Ministry of Finance, Japan Exports and Imports: Commodity by Country, 1985 and 1986 December issues; United Nations Trade Data Summary.

United States held 42 percent of Japan's sorghum imports, down from 54 percent the year before, as Argentina was able to capture a larger share. The U.S. share of Japan's barley imports continued to erode to just 4 percent from 8 percent a year earlier. U.S. barley is less price competitive than barley from Australia and Canada, Japan's largest suppliers.

### *Soybean Crushing Up*

Soybean crushings expanded about 3 percent in 1985/86 (October-September) over the previous year, following the modest growth in formula feed output. The ratio of soybean meal in formula feed production dipped slightly to 10.1 percent because of more favorable grain prices relative to soybeans. Rapeseed meal use in feed production remained close to 2 percent. As a result of recent improvements in quality, rapeseed meal has become an important protein source in feed, along with soymeal and fishmeal. Rapeseed crushings remained high in 1985/86, although down slightly from the previous year, since demand for vegetable oils was stronger relative to meals. Rapeseed yields more oil than meal compared with soybeans. A large part of the growth in Japanese oil demand was met by increased imports of palm oil, whose duty was reduced to zero in January 1986.

Soybean imports fell 2 percent in 1986 to 4.8 million tons. However, the U.S. share rose to a more normal 90 percent because of lower purchases of South American soybeans. Rapeseed imports continued to be strong, at 1.4 million tons, although 100,000 tons below the year before. While Canada remains the biggest supplier of rapeseed, Japan has begun to diversify its supplies, and plans to start importing U.S. rapeseed from the Pacific Northwest this year.

Moderate growth in soybean crushings and low carryin stocks of soymeal allowed soybean meal imports to climb to 229,000 tons, up from 134,000 tons in 1985. Imports of rapeseed meal more than doubled, to 220,000 tons in 1986, from 104,000 tons the year before, because of increased consumption in feed production and for fertilizer. Japan imported a negligible amount of soybean oil in 1986, since domestic supplies were adequate.

### *Japanese Cotton Consumption Continues to Decline*

Japanese cotton consumption continued to decline in marketing year 1985/86 (August-July). Cotton yarn production edged up marginally, contributing to an unwanted rise in cotton goods stocks. The spinning industry was beset by low yarn prices and by a 33-percent increase in yarn imports, mainly from Pakistan, South Korea, and China. The industry also faced sluggish domestic demand, and uncompetitiveness in the world market due to the yen's appreciation, which caused exports of cotton products to decline. Spinners are likely to experience a modest recovery in 1986/87, as a result of strengthening yarn prices since July 1986 and a fall-off in yarn imports.

Imports of raw cotton rose 2 percent in calendar 1986 to 695,000 tons, despite problems in the domestic spinning industry. Japan benefited from a higher-valued yen and lower world cotton prices. The U.S. share of Japan's cotton imports plummeted to 29 percent from 41 percent the year before, despite increased shipments since prices declined in August. Japanese imports from other countries, such as Australia, China, Pakistan, and the USSR, increased.

Cotton imports from China will probably not be as large this year because Chinese stocks are believed to be low. China's other obstacles to exporting cotton to Japan include a poor inland transportation system, delays in delivery, smaller bale sizes which cause handling problems, inconsistent grading, and high moisture content.

### *Prospects for 1987*

Given normal yields, rice output in 1987 is likely to decline because of the planned expansion in riceland diversion area. MAFF's 1987 rice production target is about 9.5 million tons, 1.1 million below 1986. If this is achieved, rice stocks should decline to an estimated 1.5 million tons by the end of the 1987 marketing year (October 1988). Production of both wheat and barley is expected to be lower in 1987.

Japan's livestock sector will continue to adjust to competition from growing livestock product imports. Beef and veal output is



projected to decline slightly because of lower slaughter, but consumption and imports are expected to continue expanding. Hog supplies and pork production will probably increase in 1987. Growth in broiler output will be affected by rising imports, which have caused market prices to weaken. If low feed prices are sustained, egg production is likely to continue to expand. Milk outturn is forecast to decline as a result of MAFF guidance. The prospect for continued strong live cattle imports is good.

Formula feed production is projected to expand about 2 percent during October 1986–September 1987, in line with modest growth in the livestock sector. In turn, increases in consumption and imports of feed grains are expected to be minimal. Corn prices are anticipated to be more favorable than sorghum because of the worsening prospects for Argentina's sorghum crop, pointing to increased use of corn in formula feed and greater corn imports.

Soybean crushings are projected to rise marginally during October 1986–September 1987 because of slow growth in demand for soybean meal and large carryout stocks of soymeal. Soybean imports may be up slightly in 1987, but soybean meal imports are forecast to be lower. Rapeseed crush and imports are expected to increase, because of higher consumption of rapeseed meal and greater availability of rapeseed from Canada, the EC, and the United States. Increasing imports of palm oil will meet the growth in vegetable oil consumption.

U.S. farm exports to Japan are forecast to rise slightly to \$5.4 billion in fiscal 1987, up from \$5.1 billion the previous year. U.S. exports of feed grains and cotton are expected to be substantially higher, helped by more competitive prices and reduced availability in other supplying countries. U.S. soybean sales are projected to rise slightly, but soybean meal shipments could decline. U.S. exports of high-value and processed products, such as beef and veal, poultry meat, and horticultural products, are forecast to make further strong gains because of the yen's appreciation. [Lois A. Caplan (202) 786-1611]

U.S. agricultural exports  
to Japan

Commodity groups	Fiscal years		
	1985	1986	1987(f)
Million dollars			
Animal & animal prods.	910	1,122	1,234
Beef	353	426	490
Pork	27	49	64
Poultry meat	64	81	98
Tallow, inedible	16	14	11
Cattle hds; whole	277	304	299
Other	173	248	272
Grains & feeds	2,336	1,835	1,751
Wheat & products	498	440	363
Rice	0	0	0
Feed grains	1,659	1,192	1,090
Feeds & fodder	162	189	280
Fruits & preparations	306	362	375
Nuts & preparations	72	84	95
Vegetables & preps.	135	154	180
Oilseeds & products	1,001	944	886
Soybeans	945	880	827
Veg. oils & waxes	35	38	36
Oilcake and meal	1	9	5
Tobacco, unmanufactured	326	293	250
Cotton, excl. linters	461	220	463
Other	116	125	143
TOTAL	5,663	5,139	5,376
1,000 tons			
Beef	82	100	110
Pork	8	12	15
Poultry meat	48	69	85
Tallow, inedible	35	41	45
Cattle hds; whole (1,000 no.)	6,908	6,795	6,500
Wheat & products	3,255	3,171	3,300
Feed grains	13,687	11,618	13,800
Soybeans	4,115	4,290	4,350
Veg. oil & waxes	40	46	50
Oilcake and meal	4	46	25
Tobacco, unmanufactured	47	48	45
Cotton, excl. linters	302	151	370

(f) = Forecast.

SOURCE: Bureau of the Census, U.S. Department of Commerce; ERS forecasts.

## SOUTH KOREA

Korea's economy, which boomed in 1986 with the help of low oil prices, low international interest rates, and the low value of the dollar vis-a-vis major currencies, is expected to continue to grow at an above-average rate in 1987. Korea was a \$1.3-billion market for U.S. farm products in fiscal 1986, and improved its rank from the sixth- to the fourth-largest U.S. overseas farm market.

U.S. agricultural exports to Korea are forecast to increase 18 percent to \$1.5 billion in fiscal 1987. The increase is mainly due to a substantial increase in shipments of cotton and cattle hides, stimulated in part by strong export demand for Korean textile and leather goods. Also, substantial increases in U.S. corn exports are anticipated because of less competition from other suppliers.

Despite lower commodity prices, Korea's total agricultural imports in 1986 increased 4 percent in value. Import volume of most major farm commodities increased, led by corn, wheat (including feed wheat), soybeans, cotton, and cattle hides. The United States supplied 42 percent of total agricultural import value, the lowest in over 20 years. The decrease was mainly attributed to a loss of U.S. share in coarse grain and cotton. In addition to imported feed wheat (from Australia, Canada, and the EC) to replace corn in livestock feeding, the PRC and Thailand remained strong competitors in the Korean feed grain market (corn and sorghum). High U.S. cotton prices substantially reduced the U.S. cotton share in Korea.

Total Korean agricultural output rose 4 percent in 1986, on the strength of expanded livestock production and good rice, vegetable, and fruit crops. Hog, chicken, and dairy cattle inventories rose 17, 10, and 12 percent, respectively. The Government's procurement and slaughter of 170,000 heifers increased beef production, but caused a 10-percent decline in the beef cattle inventory. Rice production, about the same as 1985, exceeded the Government's production target by 2.5 percent. The production of vegetables and fruits increased, reflecting increased demands.

To demonstrate its commitment to the income and welfare needs of farmers in an

election year, the Government increased the 1987 budget for rural development projects by more than 600 percent. A fund, to be financed in part by a surtax on agricultural imports, was established in late 1986 to boost the standard of living in the countryside. Grains and other bulk commodities are expected to be exempt from this tax. To achieve self-sufficiency goals, agricultural policy will continue to emphasize high price supports and restrictive border measures.

### *Economy Boomed in 1986, Prospect for 1987 Is Good*

With the help of low oil prices, low international interest rates, and the low value of the dollar, Korea's export-led economy boomed in 1986. Surpassing all expectations, the real gross domestic product (GDP) grew at about 12 percent, substantially higher than 1985's 5.2 percent. Exports were estimated to have grown 18 percent to about \$35.8 billion. Consumer prices rose only 2.3 percent, the lowest in more than a decade. Continuing price stability and high economic growth also provided more employment opportunities and improved living standards. Unemployment was a low 3.8 percent, and per capita GDP grew 11 percent to \$2,334.

Perhaps the most significant economic event of 1986 was the substantial improvement in Korea's deficit-ridden balance-of-payments position. The economy registered its first sizable current account surplus and its first trade surplus in decades. The improved balance-of-payments position also enabled the Government to limit foreign borrowing and repay existing debt. Korea's foreign debt decreased from \$48 billion to \$44.5 billion in 1986. According to the Bank of Korea, 50 percent of the improvement was due to the enhancement of the nation's international competitiveness, which was partly boosted by the dollar's sharp depreciation against other major currencies since September 1985. About 40 percent of the improvement was from the sharp drop in crude oil prices since December 1985, and nearly 10 percent came from lower international interest rates.

A stronger Japanese yen, coinciding with the addition of new manufacturing capacity in 1986, enabled Korea to make significant inroads in traditional Japanese export



## Macroeconomic indicators: South Korea

Item	Units	1985	1986(e)	1987(p)
<b>National Accounts:</b>				
Gross domestic prod. (GDP)	Bil. U.S.\$	86.20	97.10	116.20
GDP in 1980 prices	do.	62.69	69.21	79.26
Growth in real GDP	Percent	5.2	11.8	8.6
<b>Share of GDP</b>				
Exports of goods & ser.	Percent	37.2	41.7	42.7
Gov't cons.	do.	9.4	8.9	8.8
Gross fix invest.	do.	31.3	31.9	32.6
Priv. cons.	do.	58.6	55.5	54.4
<b>Int'l Transact:</b>				
Merchand. exports, f.o.b.	Mil. U.S. \$	30,283	35,755	41,800
Total ag. exports	do.	574	641	716
Merchand. imports, c.i.f.	do.	31,136	32,301	36,200
Total ag. imports	do.	3,117	3,239	3,400
Bal. of total trade 1/	do.	-853	3,454	5,600
Bal. of ag. trade	do.	-2,543	-2,598	-2,684
Bal. with the U.S.	do.	4,265	7,410	9,050
Bal. of ag. trade/w the U.S.	do.	-1,482	-1,294	-1,583
Share of tot. exp. to U.S.	Percent	36	39	39
Share of ag. exp. to U.S.	do.	8	10	12
Share of tot. imp. from U.S.	do.	21	20	20
Share of ag. imports from U.S.	do.	49	42	49
<b>Other Indicators:</b>				
Exchange rate 2/	Won/U.S.\$	870.0	881.1	835.5
CPI	1980=100	141.0	144.2	149.9
Growth in CPI	Percent	2.5	2.3	3.9
Mid-year population	Million	41.1	41.6	42.1
Population growth rate	Percent	1.23	1.22	1.20
Per capita GDP	U.S. \$	2,097	2,334	2,760

Note: (e) estimated 1986 values. (p) projected 1987 values.  
1/ Total exports, f.o.b., minus total imports, c.i.f. 2/ Period average.

SOURCES: Wharton Econometrics, *World Economic Outlook*, April 1987; Bank of Korea, *Monthly Statistical Bulletin*, December 1986; Korea Development Institute, *Quarterly Economic Outlook*, Fall 1986; U.N. trade data; Foreign Agricultural Service, USDA, *Annual Situation Report for South Korea*, February 1987; ERS estimates.

markets, particularly the United States and Europe. Exports to the United States rose 29 percent to almost \$14 billion, while those to Europe were up 40 percent to \$4.6 billion. Korea's bilateral trade surplus with the United States climbed to about \$7.4 billion in 1986, far exceeding 1985's record \$4.3 billion. On the other hand, Korea depends heavily on Japanese intermediate goods and machinery to produce manufactures for export, causing its trade deficit with Japan to nearly double to a record \$5.4 billion in 1986.

The 1987 real economic growth rate is forecast at 8.6 percent, with exports forecast to grow 16.9 percent to \$41.8 billion and imports to grow 12 percent to \$36.2 billion. The Government has acknowledged the need to address the trade imbalance with the United States. Additional market liberalization measures will be made; however, efforts to

open the agricultural market will be limited by domestic political considerations. Pressure for appreciation of the won against the dollar is likely to build; at least 5-percent appreciation is expected in 1987.

*Continued Bumper Rice Crop in 1986*

Rice is Korea's most important crop, representing about 90 percent of total grain production and over 40 percent of farm income. Despite typhoon damages in September, favorable weather during harvest resulted in a bumper rice crop in 1986—5.61 million tons—which was 2.5 percent greater than the Government's production target. The Government's stocks, mainly less desirable Indica-type rice, continued to pile up. In a reversal of its previous policy of conserving rice for food, the Government is now encouraging the use of rice in processed products such as makkoli (a milky rice wine that used to be made from wheat), to help reduce excessive stocks. The price of the more preferred Japonica-type rice, in short supply, rose 10 percent from 1985.

Korea's rice price support program is very expensive. Public sector expenditures on the grain support program (mainly for rice) reached a record \$1.9 billion in 1986, compared to \$0.89 billion in 1985. As a step toward economic rationalization, the Government froze rice support prices in 1983 and increased some since then. But the Government raised supports for 1986-crop rice by 6 percent, the largest increase since 1982, to enhance the ruling party's image in the next general election.

*Record Low Barley Production in 1986*

Barley (including common barley, naked barley, and malting barley), the second most important domestically produced grain in Korea, decreased 21 percent from 1985 to a record-low 453,000 tons (polished basis) because of a reduction in planted area. A tight supply situation caused an increase in farm-gate prices; for example, farm prices for barley increased 17 percent in 1986. Consequently, 127,000 tons of imported feed grains were substituted for domestic barley. In the face of political pressure, the Government raised the 1986-crop purchase price 6 percent from 1985, the highest price hike in recent years. Moreover, the



Government encouraged farmers to plant more barley by announcing a 5-percent increase in support prices for the 1987 crop.

Barley (excluding malting barley), regarded as a food grain in Korea, is consumed mostly by lower income people. As incomes increase, consumers eat less barley and more rice. Per capita consumption over the past decade decreased from about 35 kg in 1976 to less than 4 kg in 1986. To reduce public spending, as with rice supports, the Government froze barley support prices in 1983 and has increased them only slightly since then. The effort was aimed at bringing the food barley production in line with decreasing demand, but this caused a sharp drop in production. Food barley production has decreased from about 2 million tons in the late 1960's to 316,000 tons in 1986.

#### *Production of Other Crops Mixed*

In 1986, production of most field crops declined. Wheat has become a minor crop since price supports were eliminated in 1984. Domestic corn production accounts for only 2 percent of total feed grain requirements. Similarly, despite Government incentives, soybean production continued to decline—down 15 percent from 1985.

Vegetable production continued its upward trend to meet increasing consumer demand. Including year-round production in vinyl greenhouses, the area used for vegetable production in 1986 increased 4 percent, and output increased by 9 percent because of favorable growing conditions. Korea produces only a few varieties of fruits because of weather constraints; apples, tangerines, grapes, pears, and peaches account for more than 90 percent of the value of fruit production. Total fruit production increased in 1986, with an increase in all other fruits more than offsetting a decrease in tangerines. Although exports of pears and apples increased, bumper harvests caused the retail fruit price index to drop 3 percent in 1986.

#### *Livestock Industry Expanded in 1986*

High farm prices and low feed costs stimulated expansion of Korea's hog industry. Inventory increased 17 percent to 3.35 million head in 1986. Following the most recent

#### Agricultural production in South Korea

Commodity	1984	1985	1986	1986/85
	1,000 tons			Percent
Rice, milled	5,682	5,626	5,607	100
Barley	804	571	453	79
Pork	341	346	362	105
Beef and veal	122	161	190	118
Chicken meat	118	126	129	102
Eggs	272	296	299	101
Milk	841	1,045	1,250	120
Vegetables	7,260	7,083	7,720	109
Apples	528	533	538	101
Indices of production	1976-78 = 100			
Crops	100	99	100	101
Livestock	180	202	219	108
Total agriculture	108	109	113	104
Per capita agriculture	97	97	98	101

NOTE: Commodities shown are in order of importance in 1986 gross agricultural income and represent about 90 percent of total agricultural output.

SOURCES: Economic Research Service, USDA, World Indices of Agricultural Production, 1976-85; Foreign Agricultural Service, USDA, Annual Situation Report for South Korea, February 1987; Republic of Korea, Ministry of Agriculture and Fisheries, Major Agricultural Policy Indicators, 1986.

cyclical oversupply in 1983-84, the hog inventory bottomed out in mid-1985. The tight supplies resulted in high farm-gate prices in 1985 and even higher prices in 1986—a 16-percent increase. Production of chicken also expanded, causing broiler prices to drop 14 percent in 1986. Chicken flocks increased 10 percent to 56 million birds in 1986. Dairy cattle numbers also increased 12 percent to 437,000 head in 1986. Steadily increasing demand, supplemented by an expanded school milk program, pushed the farm-gate price of milk up 2 percent in 1986.

To counter low beef cattle prices in the previous 2 years, the Government purchased 170,000 heifers for slaughter in 1986. The program, aimed at achieving price stability for cattle, helped reduce the beef cattle inventory about 10 percent to 2.3 million head in 1986. Cattle prices decreased 10 percent in 1986, much less than 1985's 23 percent.



Farm and consumer food prices  
in South Korea

Commodity	1984	1985	1986	1986/ 1985
	Won/Kilogram			Percent
Farm prices				
Rice, polished				
Japanica	754	828	910	110
Wheat	290	276	296	107
Barley,				
polished	444	470	550	117
Swine, 90 kg.				
(1,000 won/hd)	97	126	146	116
Milk	313	317	322	102
Broilers	1,067	1,011	870	86
Cattle, male				
(1,000				
won/hd.)	1,371	1,066	957	90
Tobacco	2,220	2,350	2,368	101
Chinese cabbage	70	105	111	106
Support prices				
Rice (Indica				
paddy,				
2nd grade)	519	545	578	106
Barley	442	450	475	106
Soybeans	769	808	856	106
Corn	258	271	NA	NA
1980 = 100				
Consumer price				
indices				
Food	134	139	141	101
Meats	162	159	152	95
Fish	138	150	175	116
Fruits	107	121	117	97
Vegetables	128	118	129	110

SOURCES: Korean National Agricultural Cooperative Federation, Monthly Review, December 1986; Republic of Korea, Ministry of Agriculture & Fisheries, Major Agricultural Policy Indicators, 1986; and ERS estimates.

In general, consumption of livestock products increased. Per capita consumption of pork was up about 4 percent to 8.7 kg, and beef was up 10 percent to 3.5 kg in 1986. Per capita chicken consumption remained at 3.1 kg, while per capita milk consumption increased considerably, to 28.6 kg from 23.2 in 1985.

#### *Compound Feed Production Increased*

To meet demand from an expanding livestock industry, compound feed output rose 19 percent to 7.68 million tons, surpassing government targets by about 1 million tons. When 1986 import quotas were exhausted by the middle of November 1986, feed

manufacturing companies borrowed against 1987 quotas. The increases in compound feed production for different livestock categories were 14 percent for poultry (to 2.64 million tons), 13 percent for swine (to 2.18 million), 22 percent for dairy cattle (to 1.21 million), and 34 percent for beef cattle (to 1.62 million). Despite the downward trend in the beef inventory, the big increase in compound feed production for beef reflected a greater utilization of concentrate, rather than domestically produced roughage feed.

Korea's traditional reliance on imported corn for feed began to shift dramatically after 1983, when the Australia Wheat Board exported large quantities of weather-damaged wheat at bargain prices. By 1985, feed wheat captured more than one-fifth of the Korean feed grain import market. In addition to Australia, Canada and the EC entered the Korean feed wheat market. In 1986, feed wheat as a compound feed ingredient reached 1,401,000 tons, accounting for 30 percent of Korea's total grain ingredient in compound feed.

About 70 percent of feed ingredients were imported in 1986. The volume of imported feed ingredients increased about 13 percent from 1985, despite Government efforts to hold down imports. Also, the composition of compound feed continued to change in response to Government policy and the market situation. The tight import quotas on some feed ingredients forced millers to substitute expensive locally produced ingredients and nonquota items for traditional imports. In addition, cheap feed wheat substituted for corn. Thus, imports of feed wheat, wheat bran, and various vegetable protein meals increased substantially in 1986.

#### *Textile Industry*

##### *Received a Boost in 1986*

The strengthening of the yen and European currencies vis-a-vis the Korean won, and the won's stability against the dollar, made Korean textile goods an excellent buy in many foreign markets. Since late 1985, Korean textile exports have expanded more than 20 percent, remaining Korea's most important export industry and accounting for about one-fifth of all manufacturing employment.

Like Taiwan and Hong Kong, Korea's textile industry has been threatened by growing protectionist sentiment in major textile markets. In August 1986, the United States renegotiated a textile accord which limited yearly growth of Korean textile shipments to 0.8 percent during 1986-1989. This is lower than the 1 percent for Hong Kong but slightly larger than the 0.5-percent cap on Taiwan. As with the agreements signed with Hong Kong and Taiwan, the Korean pact imposes restrictions on other natural fibers, including silk blends, linen, and ramie.

To counter trade restrictions, Korea's textile industry is diversifying its export markets, modernizing its facilities, and improving product quality. The industry is developing new products not subject to quotas, and is marketing them aggressively. Some companies have set up joint ventures in developing countries to circumvent quota restrictions. The Industrial Development Law, in effect as of July 1986, authorizes the Government to assist industry in dismantling surplus capacity over the next 3 years and replacing outdated equipment. The Government is considering the extension of tax breaks and other incentives to facilitate industry adjustment.

### *Agricultural Imports Increased, But U.S. Share Decreased*

Korea's total agricultural imports in 1986 increased 4 percent in value. Import volume of most major farm commodities increased, led by hides and skins, wheat, cotton, corn, soybeans, and tallow. Import growth was in response to strong export demand for Korea's textiles and leather goods, as well as substantial growth in domestic livestock feeding. As the world's largest importer of raw hides in 1986, Korea imported more than \$500 million of raw hides, mainly from the United States.

Despite overall increases in farm imports, those from the United States declined for the third year in a row. The United States supplied 42 percent of total agricultural imports, the lowest share in over 20 years. Because of competition with the PRC and Thailand in the Korean feed grain market (corn and sorghum), the U.S. market share for corn shrank from 55 to 35 percent in 1986.

Also, because of high U.S. cotton prices during the first half of 1986, cotton imports from the United States fell sharply, and the U.S. share decreased from 73 to 42 percent in 1986. Before August 1986, when the price

South Korea's imports of principal agricultural commodities  
and the U.S. share

Commodity	Total volume		U.S. volume		U.S. share	
	1985	1986	1985	1986	1985	1986
	1,000 tons				Percent	
Corn	3,046	3,736	1,673	1,321	55	35
Sorghum	344	245	36	0	10	0
Soybeans	868	986	779	959	90	97
Soybean meal	116	117	0	42	0	36
Wheat	2,986	3,354	1,966	1,862	66	56
Raw cotton	361	377	263	157	73	42
Beef	3	--	1	--	33	0
Whole cattle hides	181	250	169	235	93	94
Tallow	117	103	69	79	59	77
	Million dollars					
Total agricultural imports	3,117	3,239	1,530	1,357	49	42

-- = Less than 500 tons.

SOURCE: Republic of Korea, Office of Customs Administration, Monthly Foreign Trade Statistics. November, 1986; ERS estimates.



provisions of the 1985 Food Security Act went into effect, U.S. loan rates prevented prices from declining, thus reducing the competitiveness of U.S. cotton. On the other hand, because of competitive prices, raw cotton imports from the PRC and Pakistan increased substantially, especially in the first half of 1986.

### *Prospects for 1987*

In 1987, Korea's agricultural policy will emphasize high support prices linked to a restrictive agricultural trade policy. The Government's earlier farm policies, including a support price freeze for rice and barley in 1983, elimination of price support for wheat in 1984, and a cattle policy which caused low cattle prices in the past 3 years, were politically unpopular. The 1985 general election showed significant erosion of the ruling party's political base in the countryside. As the ruling party prepares for the general election in late 1987 or early 1988, the Government is demonstrating its commitment to farmer welfare. In addition to generous support prices for rice and barley, evidence of this commitment includes a more than 600-percent increase in the 1987 budget for rural development projects, and the establishment of a Rural Development Fund to boost rural living standards. The fund will be supported, in part, by taxes on agricultural imports. Grains and other bulk commodities are expected to be exempt.

High price supports for major grains and oilseeds will continue in 1987. Since Korea is self-sufficient in rice production, the Government is emphasizing expanded production of upland crops such as oilseeds, beans, and potatoes, and developing local forage supplies through pastureland and forage crop development programs.

Domestic production of wheat and sorghum will continue to be insignificant, with demand met by imports. Corn production will continue to be stagnant, and soybean production is expected to decline further in 1987. On the other hand, fruit and vegetable production will expand in response to expected growth in consumer demand. Korea's fruit and vegetable imports are very limited because of high tariffs, import license requirements, and phytosanitary restrictions.

In the livestock sector, the larger hog and chicken inventories in 1986 may imply lower prices in 1987. In fact, the Government anticipates a serious pork oversupply in the second half of 1987, and is already threatening larger pig farmers with fines if they do not meet herd reduction targets. A considerable cattle price rebound is anticipated in the second half of 1987, through declining inventory and anticipated strength in consumer demand. To increase cattle prices while avoiding too steep a decline in the cattle

U.S. agricultural exports  
to South Korea

Commodity groups	Fiscal years		
	1985	1986	1987(f)
Million dollars			
Animal & animal prods.	321	479	574
Beef	8	2	2
Tallow, inedible	34	20	16
Cattle hds; whole	247	415	507
Other	32	42	49
Grains & feeds	471	407	403
Wheat & products	276	268	189
Feed grains	190	134	208
Feeds & fodder	1	4	5
Fruits & preparations	8	6	9
Nuts & preparations	1	2	3
Vegetables & preparations	9	4	4
Oilseeds & products	172	214	220
Soybeans	166	199	204
Veg. oils & waxes	5	5	6
Tobacco	4	3	3
Cotton, excl. linters	404	146	280
Other	10	16	15
TOTAL	1,400	1,277	1,511
1,000 tons			
Beef	2	.4	.3
Tallow, inedible	74	68	65
Cattle hds; whole (1,000 no.)	5,953	8,809	10,500
Wheat & products	1,901	2,059	1,850
Feed grains	1,521	1,332	2,700
Soybeans	714	954	1,050
Veg. oil & waxes	4	6	9
Tobacco, unmanuf.	1	1	1
Cotton, excl. linters	272	112	294

SOURCE: Bureau of the Census, U.S. Department of Commerce; ERS forecasts.



inventory, direct Government purchases are now emphasizing steers rather than heifers, and beef imports continue to be banned.

Agricultural imports are expected to increase in 1987, because of continued strong export demand for Korean textiles and leather goods and large livestock inventories. U.S. farm exports to Korea are forecast to increase 18 percent to \$1.5 billion in fiscal 1987. U.S. cotton will regain its dominant position, because U.S. cotton prices have become more aligned with competitors' prices under provisions of the 1985 Food Security Act. Despite large Korean imports of feed wheat as a substitute for corn, U.S. corn exports to the market are forecast to increase substantially in fiscal 1987. The United States is expected to recover some of its lost share in the Korean corn market because of less competition from the PRC and Thailand.

Korea will continue to be the world's largest importer of hides and skins, while the United States will continue to be the major supplier. The United States will also be Korea's leading supplier of soybeans, corn, and milling wheat. Despite the recent market-opening measures, which have provided opportunities for importing raisins, almonds, sweet cherries, cottonseed oil, some canned food products, and more recently turkey meat, imports of consumer-ready and even semiprocessed agricultural products will continue to be very restricted. [*Sophia Wu Huang (202) 786-1611*]

## TAIWAN

Taiwan's economy grew a robust 8.1 percent in 1986, led by a big increase in exports. The economy is expected to grow strongly, although somewhat less vigorously, in 1987. U.S. agricultural exports to Taiwan were \$1.1 billion in fiscal 1986, with the small island country improving its rank from the seventh to the sixth most important U.S. overseas farm market. U.S. farm exports to Taiwan are forecast to increase 16 percent to \$1.28 billion in fiscal 1987. The United States will be Taiwan's largest supplier of wheat, coarse grain, soybeans, cotton, tobacco, cattle hides, and many consumer-ready agricultural products.

Taiwan's total agricultural imports increased 7 percent to \$2.9 billion in 1986, led by substantial increases in soybeans, cattle hides, and cotton. Agricultural imports from the United States, however, decreased 11 percent in value because of a substantial drop in purchases of cotton and, to a lesser degree, coarse grain. Taiwan's cotton imports increased 34 percent in 1986, but the U.S. share dropped from 35 percent to 13 percent because of higher U.S. prices, leading to significant gains by Pakistan. The reentrance of South African corn reduced the U.S. corn share from 99 percent to 85 percent in 1986. The United States continued to dominate Taiwan's soybean import market, which increased 18 percent to a record 1.74 million tons.

Taiwan's overall agricultural production decreased 4 percent in 1986. Livestock production increased 1 percent, but crop production decreased 6 percent. Two typhoons in September were partially responsible for the drop in crop production, compounded by area reductions for rice and sugarcane. Livestock production expanded in 1986 despite typhoon damage to the poultry industry. Hogs slaughtered in 1986 reached a record of 10.5 million head. A strong Japanese yen boosted Taiwanese pork exports to Japan--up 31 percent in 1986 to about 86,000 tons.

The Government has made significant efforts to reduce its rice surplus. In addition to the annual release of about 300,000 tons of rice for feed, the Riceland Diversion Program has reduced area 15 percent in 3 years. Moreover, by making rice export prices more competitive, Taiwan was able to increase rice exports substantially, from 39,605 tons in 1985 to 173,114 in 1986. Production of corn, sorghum, and soybeans increased significantly because of the Riceland Diversion Program; however, self-sufficiency rates for coarse grain and soybeans were still low--about 10 percent for coarse grain and 1 percent for soybeans.

*Economic Growth Vigorous in 1986,  
Strong but Slower in 1987*

Like Korea, Taiwan's export-led economy grew vigorously in 1986. Real gross domestic product (GDP) advanced 8.1 percent, far surpassing the Government's early forecast of



5.5 percent. Increased price competitiveness vis-a-vis Japan was due to the yen's strength against both the U.S. and New Taiwan (NT) dollars.

Taiwan's exports boomed in 1986, increasing almost 30 percent to \$39.8 billion, and accounting for about 65 percent of GDP. Slumping bulk agricultural commodity and crude petroleum prices held imports to \$24.2 billion, and resulted in a record trade surplus of \$15.6 billion. The trade surplus and burgeoning foreign exchange reserves boosted Taiwan's currency, which appreciated 11 percent against the U.S. dollar during 1986. The consumer price index (CPI) grew only marginally, 0.66 percent, and per capita GDP increased 13 percent from 1985 to \$3,487.

Hidden behind this success, however, are the threats of domestic inflation and international protectionism, particularly from

the United States. Since the Government required exporters to convert U.S. dollar earnings into local currency, Taiwan's money supply (M1B) grew 40 percent, while foreign exchange reserves surged from \$21 billion to \$46 billion in 1986. On the other hand, Taiwan became a visible target for U.S. protectionists because the massive trade surplus came mainly from the United States, on which Taiwan depends for 48 percent of its exports. The surplus with the United States increased to \$13.6 billion in 1986.

To reduce the trade surplus and make the local economy more efficient, the Government has acknowledged the importance of liberalizing its market. A tariff reduction package covering 1,800 items went into effect in January 1987; the maximum tariff was reduced from 67.5 to 57.5 percent. The ban on importing pears from the United States was lifted in October 1986, and imports of beer, wine, and cigarettes were further liberalized in January 1987.

Economic growth is expected to continue, but at a slower pace; the GDP growth is forecast at 7.4 percent in 1987. Hoping to reduce the growth in the trade surplus, the Government predicts exports will grow 15 percent to \$45.7 billion, and imports 24 percent to \$30.1 billion. Growth in the CPI is forecast at 3 percent, the highest since 1982. The burgeoning trade surplus and increase in the money supply are threatening price stability. In addition, Taiwan is under increasing pressure from the United States to allow the Taiwan dollar to appreciate to reduce the bilateral trade surplus.

### *Rice Surplus Slightly Relieved*

The burdensome rice surplus problem was slightly relieved in 1986. In addition to about 300,000 tons for feed, rice production decreased 3 percent from 1985 to 1.96 million tons (milled basis) because of typhoon damage and the effects of rice area reduction policy. The Government has made great efforts to solve the rice surplus problem. A riceland diversion program and rice-for-feed program were implemented in 1984. After 3 years, production has dropped substantially; the rice area declined 15 percent between 1983 and 1986 to 546,000 hectares.

Macroeconomic indicators: Taiwan

Item	Units	1985	1986(e)	1987(p)
<b>National Accounts:</b>				
Gross domestic prod. (GDP)	Bil. U.S.\$	59.15	67.47	81.17
GDP in 1980 prices	do.	49.42	56.55	67.70
Growth in real GDP	Percent	4.1	8.1	7.4
Share of GDP				
Exports	Percent	60.0	65.2	68.5
Gov't cons.	do.	15.5	14.9	14.8
Gross fix cap. form	do.	22.4	21.9	22.0
Priv. cons.	do.	50.8	50.3	49.8
<b>Int'l Transact:</b>				
Merchandise exports,				
f.o.b.	Mil. U.S.\$	30,723	39,785	45,661
Total ag. exports 1/	do.	1,182	1,543	1,600
Merchandise imports,				
c.i.f.	do.	20,102	24,175	30,061
Total ag. imports 1/	do.	2,721	2,914	2,950
Bal. of total trade 2/	do.	10,621	15,610	15,600
Bal. of ag. trade 2/	do.	-1,539	-1,371	-1,350
Bal./the U.S. 2/	do.	10,027	13,578	16,440
Bal. of ag. trade 2/	do.	-1,288	-1,124	-1,324
Share of total to U.S.	Percent	48	48	48
Ag. commod.	do.	14	11	11
Share from U.S.	do.	24	22	19
Ag. commod.	do.	53	44	51
<b>Other Indicators:</b>				
Exchange rate 3/	NT\$/US\$	39.9	37.7	33.8
CPI	1980=100	121.2	122.0	126.0
Growth in CPI	Percent	-0.14	0.66	3
Mid-year population	Million	19.11	19.35	19.58
Pop. growth rate	Percent	1.29	1.24	1.19
Per capita GDP	U.S. dollars	3,095	3,487	4,146

(e) = Estimated. (p) = Projected 1987 values.

1/ Excludes logs, lumber, bamboo products, and sea products, but includes fish meal. 2/ Difference between exports on f.o.b. basis and imports on c.i.f. basis. 3/ Period average.

SOURCES: Wharton Econometrics, *World Economic Outlook*, April 1987; Foreign Agricultural Service, USDA, *Annual Situation Report for Taiwan*, February 1987; and ERS estimates.

Also, exports, another measure to lessen the rice surplus, increased from 39,605 tons in 1985 to 173,114 in 1986. The increase was related to the Government's adjustment in the rice export price to conform to Thailand's export prices. Subsidized rice exports, however, were still restricted by a March 1984 understanding with U.S. rice exporters limiting both quantity and market destinations during 1984-88.

After the mid-term evaluation of the Six-year Riceland Diversion Program (1984-89), the Government decided to continue the program. However, payments-in-kind given to those diverting riceland to fruit or vegetable production were lowered from 1.5 tons to 1 ton of rice, to discourage diversion of resources to these two crops. The Government purchase price for rice remained at NT\$18.8 per kilogram for

Japonica and NT\$17.7 per kilogram for Indica on a maximum purchase of 970 kilograms per hectare; this policy has not changed for the past 6 years.

The Government encourages farmers to divert their riceland to soybeans or feed grains by paying them 1 ton of paddy rice for each hectare of riceland diverted to these crops, in addition to guaranteed corn and soybean purchase prices. However, the guaranteed prices for corn and soybeans since the second crop in 1982 have remained at NT\$15 per kilogram for corn and NT\$25 per kilogram for soybeans. Guaranteed prices for sorghum, at NT\$14 per kilogram, have not changed since 1984.

### *Most Crop Production Decreased*

Production for most crops decreased in 1986, mainly because of typhoon damage in September. Production of sugarcane, the most important export crop, decreased 12 percent to a record low. Reduction in planted area was also an important factor. Production of vegetables dropped 9 percent, causing the consumer price index for vegetables to jump 9 percent. Production of many crops, such as mushrooms, asparagus, and tea, also decreased because of typhoon damage.

Despite the typhoons, production of the riceland diversion program's target crops--coarse grain and soybeans--increased substantially in 1986. The production of corn, sorghum, and soybeans increased by 20, 7, and 20 percent, respectively. Domestic production for these crops, however, remained low; self-sufficiency rates in 1986 were only 8, 14, and 1 percent for feed corn, sorghum, and soybeans, respectively.

### *Hog Production Expanded; Other Livestock Mixed*

After an unprofitable year in 1985, the hog industry--Taiwan's largest livestock industry--bounced back in 1986. Hog production expanded, resulting in a record-high 10.5 million head slaughtered. A strong Japanese yen boosted Taiwanese pork exports to Japan; they jumped 31 percent in 1986 to about 86,000 tons. Strong export performance and farmers' speculative holdings

Agricultural production in Taiwan

Commodity	1984	1985	1986	1986/85
	1,000 tons		Percent	
Pork	732	831	849	102
Rice 1/	2,087	2,021	1,962	97
Poultry meat	351	345	347	101
Vegetables	3,416	3,243	2,954	91
Eggs 2/	221	224	209	93
Sugarcane	6,545	6,823	5,982	88
Citrus fruit	354	419	414	99
Tea	24	23	22	96
Indices of production	1976-78 = 100			
Crops	102	102	96	94
Livestock	164	174	175	101
Total				
agriculture	110	112	107	96
Per capita				
agriculture	97	97	92	95

NOTE: Commodities shown are in order of importance in 1985 gross agricultural income and represent about 90 percent of total agricultural output.

1/ Conversion rate for brown rice to milled rice is 0.93. 2/ Conversion rate for 1,000 pieces of eggs to metric tons of eggs is 0.059.

SOURCES: Economic Research Service, USDA, World Indices of Agricultural Production, 1976-85; Foreign Agricultural Service, USDA, Annual Situation Report for Taiwan, February 1987; and Taiwan Council of Agriculture, Agricultural Situation Weekly, No. 107, December 27, 1986.



# Farm and consumer food prices in Taiwan

Commodity	1984	1985	1986	1986/ 1985
	NT\$/Kilogram			Percent
Farm prices				
Rice, paddy	15	14	13	93
Peanuts, with husk	42	39	41	105
Eggs, hen	38	34	32	94
Swine	49	40	50	125
Broilers	47	42	48	114
Beef cattle (NT\$ 1,000/ head)	38	40	41	103
Support prices				
Rice, paddy	18.8	18.8	18.8	100
Sugar	21	21	21	100
Corn	15	15	15	100
Soybeans	25	25	25	100
Sorghum	14	14	14	100
1980 = 100				
Consumer price indices				
Food	121	119	122	103
Meats	112	94	102	109
Fish	123	124	125	101
Fruits	144	159	152	96
Vegetables	132	144	157	109

SOURCES: Provincial Government of Taiwan, Department of Agriculture & Forestry, Taiwan Agricultural Prices Monthly, December 1986; Republic of China, Council for Economic Planning and Development, Industry of Free China, February 1987; and ERS estimates.

pushed hog farm-gate prices up 25 percent in 1986. High farm prices and low feed costs made hog raising very profitable.

Taiwan's beef production dropped 18 percent to 36,000 tons in 1986, as herds were rebuilt. Milk production increased 18 percent to 102,800 tons. Taiwan's cattle industry remained small; self-sufficiency rates for beef and milk were only 11 and 12 percent, respectively. Demand for beef has been strong, especially after the successful introduction of western-style fast food in 1984. Similarly, demand for milk has increased because of rapid economic growth and the public's growing awareness of the nutritional value of milk products. In response, the Government, once stressing only dairy production, now emphasizes beef and dairy production equally. In 1986, live cattle

imports totaled about 4,800 head, with dairy cattle imports estimated at 2,000 head.

Because of typhoon damage to the chicken industry, chicken production, which ranked second to pork among the livestock industries, decreased 1.7 percent and caused farm-gate prices for broilers to jump 14 percent. Production of other poultry, namely duck, geese, and turkey, however, increased, resulting in a 1-percent increase in total poultry production.

## Textile Industry Boomed in 1986

After a relatively poor year in 1985, Taiwan's textile industry rebounded in 1986. Since the last quarter of 1985, textile exports responded to currency realignments which enhanced Taiwan's competitiveness, particularly in Japan and Europe. In 1986, textile exports rose 21 percent to \$7.6 billion. Textiles remained the nation's largest industry, providing 19 percent of the nation's exports, 17 percent of manufacturing output, and 21 percent of manufacturing employment. Local cotton spinners, benefiting from low cotton prices, high yarn prices, and strong export demand for Taiwan's textile products, had their most profitable year ever in 1986.

Despite this prosperity, there is growing protectionist sentiment in major markets. In July 1986, the Office of the U.S. Trade Representative reached an agreement with Taiwan on textile and apparel imports into the United States. The new agreement modifies and extends through 1988 the previous textile agreement, which was due to expire at the end of 1987. The new agreement limits Taiwan's U.S. textile export growth to 0.5 percent annually from 1986 through 1988 (which was then extended to 1989 in April 1987), and enlarges coverage to new fiber products made from silk, ramie, linen, and jute, previously unrestrained by quotas.

Taiwan's textile exports to the United States rose about 16 percent to \$2.8 billion in 1986. The relative importance of the U.S. market to Taiwan's textile exports, however, decreased from a high of 41 percent in 1984 to 37 percent in 1986. The quantity limitations are encouraging Taiwan's textile industry to increase the value added of its products. To upgrade its facilities, Taiwan's textile industry

will add 400,000 spindles in 1987, bringing its total to around 4 million.

### *Agricultural Imports Increased, U.S. Share Decreased*

Taiwan's total agricultural imports in 1986 increased 7 percent to \$2.9 billion. Soybeans, hides and skins, corn, raw cotton, dairy products, wool, fish meal, and wheat were among Taiwan's major agricultural imports; each exceeded \$100 million in 1986. Coarse grain imports, including corn, sorghum, and barley, were up 6 percent, while soybean imports jumped 18 percent. Increases in coarse grain and soybean imports were mainly related to the expansion of the livestock industry. Reflecting the booming export demand for Taiwan's textiles and leather products, imports of cotton and hides increased 34 and 30 percent, respectively.

Agricultural imports from the United States, however, decreased 10 percent in value. A substantial drop in the U.S. share of cotton and coarse grain imports, compounded by lower prices for most major farm products, were mainly responsible for the decline.

The U.S. share of Taiwan's coarse grain imports rose above 90 percent after 1983,

when South Africa was unable to deliver corn to Taiwan because of drought conditions. In 1986, South Africa supplied 415,000 tons of corn to Taiwan, lowering the U.S. corn market share from 99 percent in 1985 to 85 percent. Increased sorghum imports from Argentina and Thailand also contributed to a reduced U.S. coarse grain share in 1986. South Africa's toehold in the corn market is assured by a new purchase agreement signed in late 1986, which calls for purchases of 1.8 million tons during 1987-89.

Despite Taiwan's 34-percent increase in cotton imports during 1986, the U.S. share continued to drop. Taiwan's cotton imports from the United States were substantially reduced, from 102,000 tons in 1985 to only 50,108 tons last year; the U.S. share dropped from 35 percent to 13. Before the cotton provisions of the 1985 Food Security Act went into effect in August 1986, high U.S. cotton prices had a severe impact. Pakistan continued to make significant gains because of its lower prices; its market share increased from 2 percent in 1984 to 20 percent in 1985 and to 32 percent in 1986.

Taiwan's soybean imports were up 18 percent in 1986 to a record 1.74 million tons, with 1.67 million tons from the United States.

Taiwan's imports of principal agricultural commodities and the U.S. share

Commodity	Total volume		U.S. volume		U.S. share	
	1985	1986	1985	1986	1985	1986
	1,000 tons				Percent	
Corn	3,017	3,071	2,997	2,622	99	85
Sorghum	564	810	178	328	32	40
Barley	337	278	128	74	38	27
Soybeans	1,469	1,739	1,396	1,669	95	96
Raw cotton	288	386	102	50	35	13
Wheat	755	768	693	667	92	87
Tobacco	16	13	13	10	81	77
Beef	27	32	1.5	1.5	6	5
Cattle hides	107	139	79	104	74	75
Powder milk 1/	63	69	4	7	6	10
Apples	50	56	34	36	68	64
	Million dollars					
Total agricultural imports	2,721	2,914	1,456	1,296	53	44

1/ Excludes powder milk for fodder use.

SOURCES: Republic of China, Inspectorate General of Customs, The Trade of China, December 1985 and 1986 issues.



Only small purchases were made from Uruguay and Paraguay. The Government has gradually liberalized purchasing regulations for corn and soybeans. Beginning in 1986, members of appropriate trade associations can import up to 20 percent above allocated import quota levels for corn and soybeans. Since the crushing capacity of Taiwan's soybean mills is about three times the quota, new high-capacity mills are taking advantage of the allowance to import more beans. Changes in the Government's import policy, increases in domestic feed demand, and low prices were the main causes of the 1986 surge in soybean imports.

### *Prospects for 1987*

Production of sugarcane and rice will continue to decline in 1987. Low international sugar prices have made the Government cut sugarcane area in recent years. Sugar production in the future will be reduced to meet domestic demand only. The Riceland Diversion Program and the rice-for-feed program will continue, but rice self-sufficiency will be only slightly lower—from 105.2 in 1986 to 104.5 percent in 1987. Production of the target crops in Taiwan's Riceland Diversion Program—corn, soybeans, and sorghum—will increase. The Government estimates that self-sufficiency rates will improve slightly in 1987 for feed corn (to 9 percent), sorghum (to 15 percent), and soybeans (to 1.1 percent).

The steadily appreciating Taiwan dollar poses a potential threat to Taiwan's pork exports to Japan; they are expected to slow in 1987. The Government estimates hog slaughter will drop from 10.5 to 10 million head in 1987. The cattle industry will grow slowly, while imports of both dairy and beef cattle will continue to increase. Chicken production will grow strongly to meet increased demand for broilers. Changing eating habits, an increasingly health-conscious public, and rapidly expanding fast-food chains have caused a strong demand for broilers.

Taiwan's currency appreciation may slow the growth of the textile, leather, and shoe industries. In addition, despite the House of Representatives' failure in August 1986 to overturn President Reagan's veto of a textile bill (the Jenkins Bill), pressure for more

restrictions on Taiwan's exports can be expected to grow in the future. Taiwan's imports of cotton and cattle hides, however, will not decrease in 1987 because these industries have back orders that will keep them busy for most of the year. Large livestock inventories and a more relaxed import policy for bulk commodities will ensure increased coarse grain and soybean imports in 1987.

### U.S. agricultural exports to Taiwan

Commodity groups	Fiscal years		
	1985	1986	1987(f)
Million dollars			
Animal & animal prods.	145	195	209
Beef	6	7	8
Tallow, inedible	10	8	6
Cattle hds; whole	112	150	170
Other	17	30	25
Grains & feeds	587	439	396
Wheat & products	96	98	90
Feed grains	461	319	281
Feeds & fodder	29	20	23
Fruits & preparations	29	36	80
Nuts & preparations	5	6	8
Vegetables & preparations	8	10	12
Oilseeds & products	347	330	328
Soybeans	341	324	321
Veg. oils & waxes	5	5	5
Tobacco, unmanufactured	62	61	42
Cotton, excl. linters	147	18	192
Other	12	13	15
TOTAL	1,342	1,108	1,282
1,000 tons			
Beef	1	1	1
Tallow, inedible	23	26	23
Cattle hds; whole (1,000 no.)	2,775	3,464	3,800
Wheat & products	609	650	700
Feed grains	3,539	2,910	3,300
Soybeans	1,392	1,506	1,630
Veg. oil & waxes	2,775	3,464	3,800
Tobacco, unmanufactured	11	11	7
Cotton, excl. linters	110	18	218

SOURCE: Bureau of the Census, U.S. Department of Commerce; and ERS forecasts.



The Government has approved 1987 quotas for major bulk commodities as follows: soybeans 1,802,572 tons; corn 2,953,702 tons; wheat 700,000 tons; barley 350,000 tons; and sorghum 1,262,496 tons. Quotas for soybeans, barley, and sorghum are set higher than actual imports in 1986, while the quotas for wheat and corn are lower. Some flexibility is possible for the import quotas. For example, in 1986 wheat importers were allowed to borrow 80,000 tons (11 percent of 1986 quota) from the 1987 quota. In principle the amount borrowed would have to be repaid, but this is not expected to happen. Also, both corn and soybean imports will again be allowed to exceed their quotas by 20 percent in 1987.

U.S. farm exports to Taiwan are forecast to increase 16 percent to \$1.28 billion in fiscal 1987. The increase is mainly attributed to a substantial increase in cotton and cattle hide imports, stimulated in part by strong export demand for Taiwan's textile, leather, and shoe products. Also, the United States is expected to increase exports of feeds and fodder, and of some high value products, notably fruits, nuts, vegetables, and their preparations. The volume of U.S. feed grain and soybean exports to Taiwan is expected to increase, but value is forecast to decrease because of expected lower prices.

The United States will continue to be Taiwan's largest supplier of wheat, coarse grain, soybeans, cotton, tobacco, cattle hides, and some consumer-ready agricultural products. The provisions of the 1985 Food Security Act that took effect in August 1986 will allow U.S. cotton to regain its traditional dominance in the Taiwan market. Furthermore, Taiwan renewed a 5-year trade agreement with U.S. exporters which will assure continued stability in U.S. bulk farm exports. The agreement (signed in October 1986) calls for annual purchases of 570,000 tons of wheat; 200,000 tons of barley; 1.72 million tons of corn during 1986/87-90/91; and 1.1 million tons of soybeans during 1986/87-87/88, 1.15 million tons in 1988/89-89/90, and 1.2 million tons in 1990/91. Actual shipments of U.S. grains and soybeans to Taiwan are expected to exceed these quantities. [Sophia Wu Huang (202) 786-1611]

### *Economic Activity Slows; Inflation Advances*

Declining terms of trade forced restrictive economic policies on the Governments of Australia and New Zealand. Australia's economy grew only 1.5 percent in 1986, and New Zealand moved into recession. Meanwhile, inflation worsened in both countries, exacerbating trade problems and delaying or jeopardizing economic recovery.

Economic activity should improve in 1987, and inflation should moderate. Australia appears to be controlling wage increases more effectively than is New Zealand.

Economic well-being in Oceania relies strongly on the world's demand for its exports—agriculture and mineral resources in Australia and agriculture and forestry in New Zealand. The two countries are active proponents of the current multilateral trade negotiations. They seek to end export subsidies in agriculture and improve market access.

### *Agricultural Sectors in Recession*

Farmers in both countries have been hit by depressed world markets, and in New Zealand, by radical shifts in government economic policy.

Australian farm income fell almost a fifth in 1985/86 but is expected to improve slightly in 1986/87, mostly because of good weather. However, in real terms, income will remain about 56 percent of the 1980/81 level.

In New Zealand, the 1985/86 season may have been the worst ever for sheep and beef farms, and only slight improvement is foreseen in 1986/87. Dairy farm income is deteriorating. Returns to grains have been disappointing, but horticulture remains promising.

### *Market-Oriented Policies Continue*

The New Zealand Government is maintaining its program of economic reform. Support from farmers waned during 1986 as prices plummeted. Farmers oppose policies



that raise interest rates and the value of the New Zealand dollar, and decry the Government's hesitancy in restraining wage increases. The Government is trying to ease agriculture's transition.

Low world wheat prices will force the Government of Australia to fulfill its underwriting commitment for the 1986/87 crop. The Government is taking action to improve efficiency and reduce costs of processing, handling, and transporting farm products, and to strengthen marketing efforts. It refused to grant special aid to rice producers. New dairy marketing arrangements are more responsive to the market.

#### *Agricultural Production Stable*

Aggregate agricultural production in Australia was about steady in 1986, but significant changes affected specific sectors. Wheat production rose while output of other grains dropped. Meat production increased 6 percent. New Zealand agricultural production fell 4 percent because meat and wool production dropped. However, crop production continued to expand, and milk output reached a record high.

Australian agricultural production may decline in 1987. Crop prices are discouraging plantings, beef and veal production is expected to slip as producers build herds, and reduced lambings will cut sheepmeat output.

Agricultural production may also decline in New Zealand. Poor weather is cutting milk production, the lamb crop will be down, and grain plantings may shrink. Wool production should recover, and beef and veal output is rising.

#### *Trade Outlook Poor*

The value of New Zealand's agricultural exports fell 10 percent in 1985/86 because of reduced meat supplies and lower prices. Australian exports increased 7 percent in volume and 10 percent in value.

The region's exports in 1986/87 and 1987/88 will probably contract because of reduced availabilities. Beef and veal prices on the world market are expected to increase, and wool prices are good, but the outlook is poor for other bulk commodities. The value of

Australia's and New Zealand's agricultural exports will depend largely on currency movements. [Sally B. Byrne (202) 786-1611]

## AUSTRALIA

Prospects for Australian agriculture have improved during recent months because of strengthening meat and wool prices and good weather. Farm income fell almost a fifth in 1985/86 and is expected to recover 5 to 10 percent in 1986/87. In real terms, income will remain at about 56 percent of the 1980/81 level. The index of prices paid will continue to outpace that of prices received. Input use is declining as farmers conserve capital and improve efficiency to offset the price squeeze. The depreciation of the Australian dollar has shielded producers from the full effect of declining world crop prices.

The financial situation of Australian farmers is not as depressed as in the United States. Agriculture's debt burden has increased markedly, but most farmers have sound financial positions. Five percent are judged to be at risk.

Wheat production rose 4 percent in 1986/87 despite a cutback in area. Winter coarse grain area and production fell almost a fifth, but sorghum area rose sharply. Oilseeds area declined 14 percent; cotton area, 16 percent. Mutton and beef and veal production continued to increase in 1986. Lamb production declined as sheep producers emphasized wool. Wool production in 1986/87 will be the largest since 1971/72.

During 1986 and early 1987 Australia aggressively pursued trade liberalization through multilateral and bilateral channels. The first negotiating priority is the freezing of agricultural export subsidies.

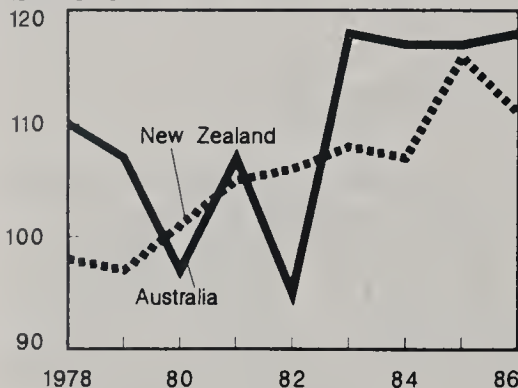
Major U.S.-Australia trade policy issues are the U.S. Export Enhancement Program for wheat and barley, marketing loan sales of rice, and reduced sugar imports. The U.S. dairy whole-herd buyout program had a less adverse effect on the manufacturing beef market than had been anticipated.

The drop in world wheat prices will likely require the Australian Government to make a

# Oceania Agricultural Indicators

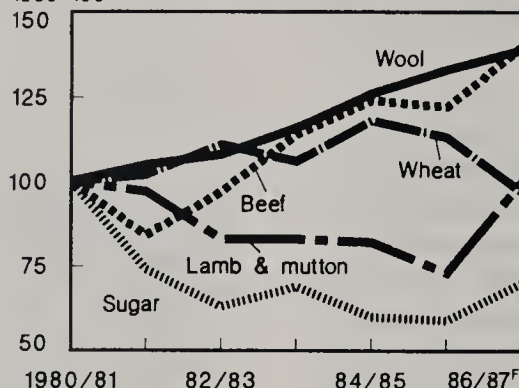
**Agricultural Production in Oceania<sup>1,2</sup>**

1976-78=100



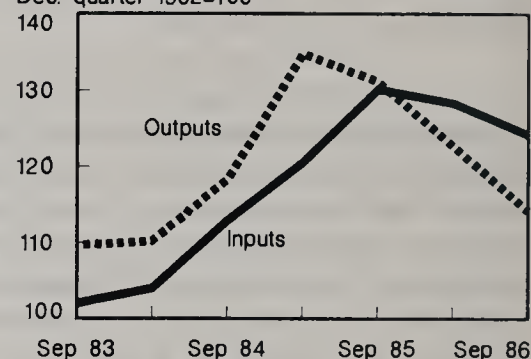
**Prices Received by Farmers: Australia<sup>3</sup>**

1980=100



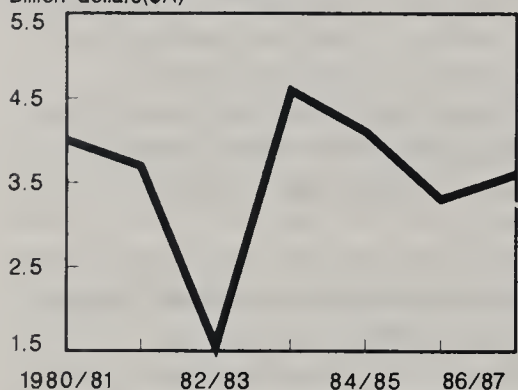
**Ag Output and Input Price Indexes: New Zealand<sup>4</sup>**

Dec. quarter 1982=100



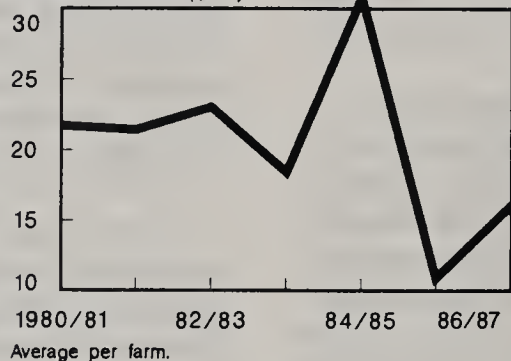
**Farm Income: Australia<sup>3</sup>**

Billion dollars(\$A)



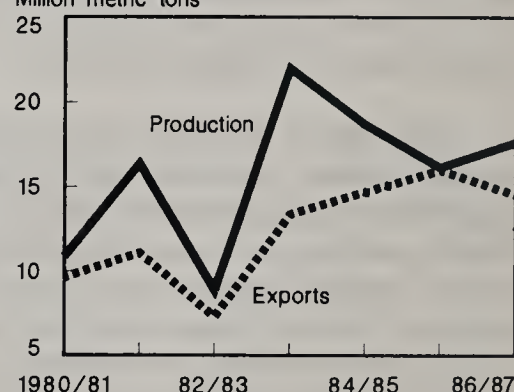
**Beef and Sheep Farm Income: New Zealand<sup>5</sup>**

Thousand dollars(\$NZ)



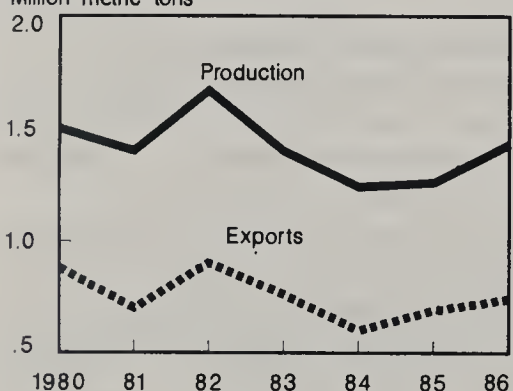
**Wheat: Australia<sup>2,3</sup>**

Million metric tons



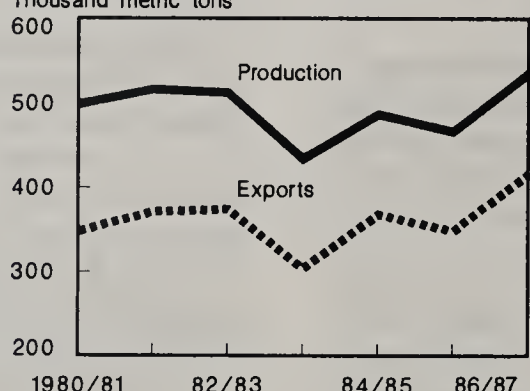
**Beef and Veal: Australia<sup>3</sup>**

Million metric tons



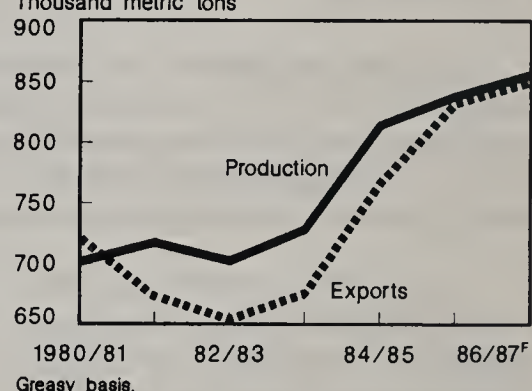
**Beef and Veal: New Zealand<sup>2,4</sup>**

Thousand metric tons



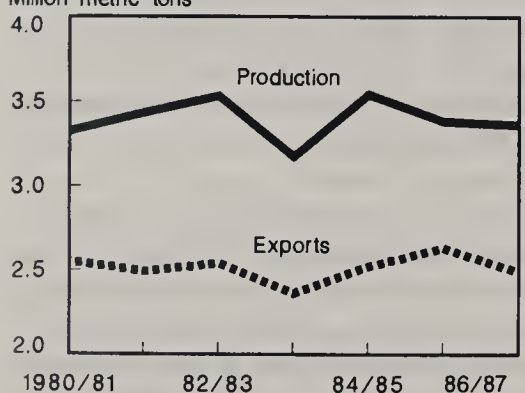
**Wool: Australia<sup>3</sup>**

Thousand metric tons



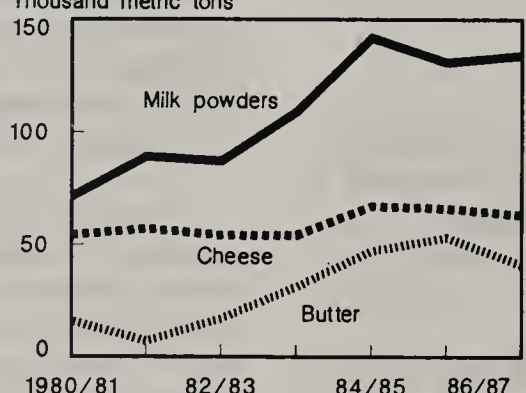
**Raw Sugar: Australia<sup>3</sup>**

Million metric tons



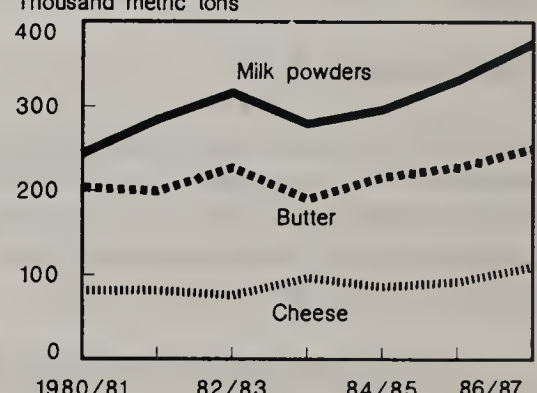
**Dairy Product Exports: Australia<sup>3</sup>**

Thousand metric tons



**Dairy Product Exports: New Zealand<sup>1,4</sup>**

Thousand metric tons



1/ ERS, USDA, World Indices of Agricultural Production, and ERS, USDA estimates.

2/ Foreign Agricultural Service, USDA.

3/ Quarterly Review of the Rural Economy, Australian Bureau of Agricultural Economics.

4/ Monthly Abstract of Statistics, New Zealand Department of Statistics, and ERS, USDA estimates.

5/ New Zealand Meat and Wool Boards; Economic Service.



payout to support the Guaranteed Minimum Price (GMP), as mandated in the 1983 Wheat Marketing Act. The Government of Australia rejected the rice industry's request for a new assistance program for the 1986 and 1987 crops. New dairy marketing arrangements came into effect in July 1986. Their intent is to increase the industry's responsiveness to market forces while continuing a basic level of protection.

### *External Pressures Force Economic Slowdown*

Australia's economic performance in 1986 was below expectations. Government fiscal and monetary policies were tightened in response to the worsening current account deficit and the depreciation of the currency. The economy contracted during late 1985 and the first half of 1986. Recovery has since been slow. Inflation was high through 1986 because of a weaker currency and higher petroleum taxes. The unemployment rate rose through the year because of a large increase in the labor force.

Low commodity prices have caused a precipitous drop in Australia's terms of trade. The Australian dollar reached record low levels during July 1986. Reserve Bank interventions and high interest rates helped the currency recover somewhat later in the year. The Australian dollar was worth 70-72 U.S. cents during January-May 1986, fell to 61 cents during August, and recovered to 71 cents by April 1987.

The Government of Australia is working to reduce its budget deficit in order to restrain domestic demand and improve its foreign trade. It raised interest rates and relaxed restrictions on capital inflow to stabilize the current account situation. However, the high interest rates have stifled investment. Fiscal policy will likely be further tightened to allow monetary policy and interest rates to ease.

Australia has a comprehensive wage-fixing system under which "award rate" wages, tied to the cost of living, are paid to most workers. In a time when Australia's international terms of trade are deteriorating, this inflationary policy undermines confidence in the economy.

### Macroeconomic indicators: Australia

Item	Units	1985	1986(e)	1987(f)
<b>National Accounts:</b>				
Gross domestic prod.	Bil. \$A	222.0	239.8	260.9
GDP in 1980 prices	do.	147.9	149.2	151.9
Growth in real GDP	Percent	4.5	.9	1.8
Share of GNP				
Exports	Percent	16.8	16.0	15.7
Gov't cons.	do.	16.7	17.4	17.7
Gross fix cap. form.	do.	23.4	22.6	21.6
Priv. cons.	do.	60.4	61.5	61.9
Total exports, f.o.b.	Mil. U.S.\$	22,798	23,552	24,400
Total imports, f.o.b.	do.	23,174	25,010	25,600
Trade balance	do.	-376	-1,458	-1,200
U.S. imp. from Australia	do.	2,837	2,632	NA
U.S. exp. to Australia	do.	5,375	5,449	NA
Bal. w/the U.S.	do.	-2,538	-2,817	NA
<b>Int'l Transact:</b>				
Exchange rate	\$A/\$U.S.	1.43	1.49	1.54
CPI	1980=100	149.0	162.3	175.7
Growth in CPI	Percent	6.7	8.9	8.2
Population	Million	15.75	15.99	16.23
Pop. growth rate	Percent	1.4	1.5	1.5
Per capita GDP	U.S. dollars	9,870	10,031	10,245

SOURCES: Wharton World Economic Outlook, April 1987; Bureau of the Census.

During 1986, wage adjustments were set below the rate of inflation, but labor costs still outpaced those of trading partners. In December, a two-tiered wage system replacing full indexation was announced. The first tier is a fixed dollar amount for all workers. The second tier is negotiable within each industry.

Growth in the Australian economy is expected to remain slow through 1987. Domestic and export demand and investment will be weak. Inflation will improve only slightly. Unemployment will remain high because few new jobs will be created.

### *Agricultural Policy*

Responding to the deteriorating financial condition of the agricultural sector, the Government of Australia issued a comprehensive Rural Policy Statement in April 1986. Price support programs and underwriting arrangements are gradually being made consistent with underlying market trends. Simultaneously, adjustment assistance is being expanded. The Government is enhancing support to marketing and exerting pressure to improve marketing systems. To restrain on- and off-farm cost escalation,

protection of manufacturing is being reduced, and the Government is working to improve the efficiency and productivity of the handling and transportation systems. Australia is aggressively seeking multilateral trade liberalization to increase market access for its products. However, the Government has stated that macroeconomic policy will not be a tool of agricultural policy.

Australia set the final GMP for Australian Standard White wheat at \$A 139.83 in 1986/87, 7 percent below 1985/86. Producers receive the GMP less handling, storage, and freight charges. This year, it is the only payment most producers will receive, so farm prices will decline 14 percent to about \$A104 a ton.

The GMP is \$A9 above the preliminary GMP, announced last September, and well above industry expectations. The Government of Australia will be required to make a substantial payout—around \$A15 a ton—to fulfill its underwriting obligation to support the GMP; it will be the first payout since 1972/73.

The GMP is set according to a formula which uses gross pool returns from the prior three crops (eliminating the highest), forecast returns for the current crop, and forecast costs for the current pool. The announced GMP appears to be based on an optimistic estimate for 1986/87 export prices. The Government appears to be willing to provide generous support to the wheat industry to cushion the effects of the world price drop.

New dairy marketing arrangements implemented in July 1986 move the industry towards a market orientation. Under former arrangements, levies on domestic sales of dairy products subsidized exports. These levies are being replaced by levies on all milkfat produced. Pooling arrangements have been changed to restore exporting firms' incentive to maximize returns. The Government will continue to underwrite export returns.

#### *Crop Area Dropped Further In 1986/87*

Australian wheat production rose 4 percent in 1986/87. Dry weather through the summer and early fall, deficient subsoil moisture, and discouraging price prospects caused farmers to reduce area 4 percent. In

#### Agricultural and consumer food prices in Australia

Commodity	1984/85	1985/86	1986/87(f)	1987/86
	\$ /ton			Percent
Wheat	133	121	104	86
Barley	137	126	114	90
Sugarcane	20	19	23	121
Cotton	226	174	193	111
Sunflowerseed	302	282	241	85
Lupins	127	159	165	104
	A cents/kilogram			
Beef & veal	171	168	197	117
Lamb	105	92	138	150
Mutton	40	28	32	114
Wool	526	533	580	109
Milk	18.2	19.5	19.0	98
Consumer price indices	IV-84	IV-85	IV-86	1987/86
	1980/81 = 100			Percent
Food	133.5	143.2	156.0	109
Meat & seafood	118.8	129.9	132.7	102
Fruits & vegs.	136.4	140.1	171.1	122
Cereal prods.	144.4	162.0	171.2	106
Away-from-home	139.5	152.6	165.9	109

1/ Wheat and milk prices are farm-gate. Cotton price is Australian base price. Meat prices are saleyard prices, dressed weight. Wool prices are auction price, market indicator. Other prices are average unit gross value at principal markets.

SOURCES: Australian Bureau of Agricultural Economics, Australian Bureau of Statistics, and Economic Research Service estimates..

most regions, exceptionally good mid- and late-season weather boosted yields well above average. Rains were above normal, and temperatures were mild. Late rains delayed harvest and caused minor quality damage.

Barley area and production fell sharply because of low prices and dry weather. Oats area and production increased; oats are preferred to barley as livestock feed. Sorghum area is record-large because of the cutback in winter crop area and poor returns to sunflowerseed. Rice and oilseed area and production fell sharply. The area planted to lupins and field peas jumped 38 percent, in support of livestock operations.



Prospects for cotton prices were poor when planting decisions were made, and area is down 16 percent. Planting conditions were favorable, but cool weather slowed development. Yields are expected to be below 1985/86's record high. Sugar production may decline because of drought in major growing areas.

### *Livestock Prices Improving*

Cattle slaughter rose 8 percent in 1986. Dry pastures forced slaughter rates up in the first half of the year, and prices declined. In the second half, the lower Australian dollar created favorable prices, which brought more animals to slaughter. Beef and veal production rose 7 percent. Cattle numbers in March 1987 are estimated at 23.3 million head, the same as a year earlier.

Cattle feeding expanded significantly in 1986. During the fall and winter, poor pastures and low grain prices made feeding attractive. As pastures improved, the number of cattle on feed declined but remained well above a year earlier. Australian consumers are being persuaded to eat more branded

grain-fed beef, and exporters are finishing steers to meet Japanese specifications. Feedlot volume increased 60 percent in 1986. The number of cattle on feed peaked in June at 233,000 head.

The Australian sheep herd increased to 160 million head in March 1987, the largest since 1972. Favorable wool prices and disappointing returns to sheepmeat and grains are encouraging producers to expand herds. Good weather early in the season will ensure a continued high wool cut per head, and production may rise 2 percent in 1986/87. The price is forecast up 9 percent.

Adult sheep slaughter jumped 19 percent in 1986, but lamb slaughter fell 5 percent because of reduced lambings. Total sheepmeat production was up 3 percent. Mutton prices continued to slide, but lamb prices rose more than 30 percent.

Milk production may decline 1-2 percent in 1986/87 because of reduced cow numbers. After deduction of the levy on milkfat production, farm prices will be down about 2 percent.

### *Agricultural production in Australia*

Commodity	1984	1985	1986	1986/85
	1,000 tons			Percent
Wheat	18,666	16,127	17,500	109
Wool	814	838	856	102
Beef & veal	1,272	1,338	1,436	107
Milk	6,087	6,205	6,205	100
Coarse grains	8,629	7,816	7,042	90
Fruits	2,196	2,390	2,401	100
Vegetables	2,131	2,198	2,099	95
Poultry meat	315	362	377	104
Sugar (94 nt)	3,547	3,378	3,360	99
Pork	257	264	266	101
Mutton & lamb	474	553	570	103
Cotton	249	258	196	76
Eggs				
Indices of production	1976-78 = 100			
Crops	139	133	132	99
Livestock	99	103	106	103
Total				
agriculture	117	117	118	101
Per capita agriculture	107	105	105	100

SOURCES: Australian Bureau of Statistics, Bureau of Agricultural Economics, and USDA.

### *Agricultural Exports May Decline*

Agricultural exports are forecast to decline about 4 percent in value and volume in 1986/87. Crop exports are down significantly. Wool exports are increasing and meat and dairy product export prices are up.

Wheat exports were up 5 percent in the first 6 months but are expected to decline in the second half. Australia has sold 3.5 million tons of wheat to China for delivery between September 1986 and October 1987. Only 550,000 tons of new-crop wheat have been sold to the USSR. Two million tons have been sold to Egypt, and large sales have been made to Iran and Iraq.

Coarse grain exports are expected to decline sharply because of reduced supplies. Saudi Arabia will remain the largest market.

Cotton exports rose sharply during July-December 1986, but will decline in 1987 because of short supplies. Exports to East Asia were up in the first half.

Australia's major agricultural exports and principal markets

	1985/86		1986/87(f)		Principal markets
	1,000 tons	\$A Mil.	1,000 tons	\$A Mil.	
Wool, greasy equiv.	832	3,052	850	3,410	EC, Japan, USSR, China
Wheat	16,000	2,953	15,500	2,200	Egypt, China, USSR, Iran
Beef & veal	468	1,300	466	1,470	United States, Japan
Sugar	2,601	602	2,490	657	Japan, Canada, China, Malaysia, South Korea
Barley	4,472	609	2,525	290	Saudi Arabia, Japan, Taiwan
Dairy products	--	439	--	458	Japan, Saudi Arabia, Iraq Taiwan, Malaysia, Philippines, Japan, Singapore
Cheese	66	165	63	163	
Milk powders	131	172	134	199	
Cotton	241	382	223	356	Japan, Taiwan, Other Asian countries
Lamb & mutton	143	220	151	247	Japan, United Arab Emirates, Iran
Live sheep	6.35 1/	171	6.7 1/	174	Saudi Arabia, Kuwait, Other Middle East
Rice, milled equiv.	499	183	390	129	Papua New Guinea, Hong Kong, Saudi Arabia
Sorghum	1,234	178	966	199	Japan, Taiwan

1/ Million head.

SOURCES: Australian Bureau of Statistics, Bureau of Agricultural Economics, and USDA.

Wool exports are expected to continue to increase in 1986/87. The Australian dollar's decline has improved their price competitiveness.

Beef exports increased 14 percent in volume in 1986. Shipments rose 12 percent to the United States, 69 percent to Canada, 11 percent to Japan, and 12 percent to Taiwan. Exports may decline a tenth in 1987 because of reduced supplies.

Mutton export volume jumped 38 percent and lamb exports, 22 percent, in 1986. Sheepmeat exports to Japan rose 26 percent, Iran, 260 percent; other Middle Eastern countries, 7 percent; and the United States, 130 percent. In 1987, mutton exports could remain large but lamb exports may decline. Live sheep exports declined 3 percent last year because of weak demand in the Middle East and competition from New Zealand. A slight recovery is anticipated in 1987 as Algeria replaces meat imports with live animals.

Dairy product exports may increase 4 percent in value in 1986/87. Whole milk powder exports are replacing butter and nonfat dry milk. Southeast Asian countries are turning to Australia because of concern about nuclear contamination of European supplies.

#### *U.S. Agricultural Exports Rising*

U.S. agricultural exports to Australia increased 4 percent in value in fiscal 1986. Most of the gain was in higher prices and volumes of flavoring syrups. Export value was up 16 percent in the first 4 months of fiscal 1987.

#### *Outlook for 1987 Clouded*

Farm income may decline in 1987/88 as crop production shrinks and prices remain depressed. The short-term outlook for livestock products appears favorable.

Wheat area and yields are likely to decline, and export availability will be



U.S. agricultural exports  
to Australia

Commodity groups	Fiscal years		
	1985	1986	1987(f)
Million dollars			
Animals & animal prods.	12.2	9.3	9
Grains & feeds	5.1	4.3	5
Fruits & prep.	14.0	11.1	10
Nuts & prep.	15.4	14.3	14
Vegetables & prep.	17.3	17.1	17
Oilseeds & prod.	18.7	17.1	16
Tobacco	26.8	26.3	27
Field & garden seeds	5.9	6.3	6
Sugar & tropical prod.	10.9	28.3	30
Other	5.6	3.3	6
TOTAL	131.9	137.4	140
1,000 tons			
Fresh fruits	12.5	9.8	7
Almonds (shelled basis)	2.8	2.7	2
Frozen vegetables	7.3	6.1	5
Pulses	2.9	2.9	3
Protein meal	15.6	40.2	40
Soybeans	29.0	---	---
Vegetable oils	2.5	1.8	2
Tobacco	4.0	4.5	5

SOURCE: Bureau of the Census, U.S. Department of Commerce; ERS forecasts.

U.S. agricultural imports from Australia

Commodity	1984	1985	1986
Million dollars			
Beef & veal	480.6	473.6	537.2
Sheepmeat	3.7	6.4	14.0
Dairy products	24.3	17.7	20.7
Wool	86.9	75.6	97.1
Sugar & related products	109.0	58.1	46.9
Fruits, nuts, & veg.	9.5	19.9	18.8
Grain & products	17.5	15.0	16.0
Beverages	9.6	10.4	16.0
Other	13.7	25.5	20.3
TOTAL	754.7	702.1	787.0
1,000 tons			
Beef & veal	243.3	265.7	312.5
Sheepmeat	1.7	3.7	9.1
Casein	7.0	5.5	6.1
Cheese	4.1	3.9	4.3
Wool	23.6	21.6	30.3
Sugar & related prod.	433.7	388.7	218.7

SOURCE: Bureau of the Census, U.S. Dept. of Commerce.

reduced. Coarse grain area will probably remain small, and oilseed area is unlikely to expand unless prices improve. Area planted to lupins and field peas is expected to expand further. If the improvement in prices continues, cotton area should recover.

Cattle slaughter is likely to decrease in 1987. Good pasture conditions and favorable price prospects may lead to a 3-percent increase in the herd. Beef and veal production may decline 6 percent. Domestic consumption is expected to shrink because of lower pork and poultry meat prices, but most of the production decline will be reflected in exports.

The sheep herd is expected to continue to expand in 1987. Sheep slaughterings may be up 9 percent but lamb slaughter may drop 11 percent. [Sally B. Byrne (202) 786-1611]

## NEW ZEALAND

New Zealand agriculture remained in recession in 1986. High interest and inflation rates, low commodity prices, and drought beset farmers.

The New Zealand Government is maintaining its free-market policies in agriculture. A debt-discounting scheme was introduced in July 1986 to assist those producers with the most severe financial problems. Seven percent of sheep, beef, and dairy farmers appear to be in distress.

The 1985/86 season has been described as the worst financial year on record for sheep and beef farms. Gross farm income fell 30 percent. Debt servicing charges rose sharply, and farmers cut back use of other inputs. Real net farm income was 23 percent of the 1975/76 level. Only modest improvement is expected this year, contingent on currency movements.

Gross income of dairy farmers declined 4 percent in 1985/86; net income dropped 14 percent. Further deterioration is likely this year.

Declining fertilizer use has been a concern throughout the 1980's. Phosphate fertilizer use was 2.42 million tons in 1978/79, then declined for several years before

recovering to 2.0 million in 1984/85. Use fell to 1.3 million tons last year. Immediate and future productivity are jeopardized as the pasture base deteriorates.

The index of prices received was at 116 in June-quarter 1986 (December-quarter 1982=100), having declined over the previous year. The index of prices paid (excluding interest) was at 125, having declined since the last quarter of 1985.

Milk production is estimated down 15 percent in 1986/87 because of drought. Beef and veal production continues to increase, but sheepmeat output is declining because of poor prices. The boom in grains has ended, but horticulture remains an important area for diversification.

The value of agricultural exports declined in 1985/86 (July-June) because of lower meat prices and volumes and lower wool and butter prices. The decline in meat exports resulted in part from a 7-week meatworkers' strike. Some recovery is anticipated in 1986/87.

### *Economy in Recession in 1986*

Monetary austerity, together with other elements of economic reform, have pushed the New Zealand economy into recession. Real GDP declined in the second half of 1985 and through most of 1986. The Government was unable to reduce its budget deficit as much as planned.

The rate of inflation was 12 percent in 1986; among OECD countries, only Turkey's was worse. Several factors are exacerbating price rises. Wage increases are continuing to outstrip productivity gains. The New Zealand Government is now charging for many services, and the costs to business are being passed through the economy. A 10-percent Goods and Services Tax (GST) was introduced on October 1, 1986. In addition to its direct effect on the Consumer Price Index, the GST also caused an inflationary pre-imposition buying spree. Retailers are taking advantage of the GST to raise prices and are not passing along concurrent tax reductions. The appreciation of the Japanese yen has meant higher prices for many imported consumer and industrial products in New Zealand.

### Macroeconomic indicators: New Zealand

Item	Units	1985	1986(e)	1987(f)
<u>National Accounts:</u>				
Gross domestic prod.	Bill. \$NZ	46.99	54.39	60.97
GDP in 1980 prices	do.	28.3	28.1	28.3
Growth in real GDP	Percent	1.2	-.7	1.0
Share of GDP				
Exports	Percent	30.7	32.0	32.5
Gov't consumption	do.	16.6	16.7	16.6
Gross fix cap. form.	do.	21.9	19.9	20.1
Priv. cons.	do.	55.5	55.5	55.1
<u>Int'l Transact:</u>				
Total exp., f.o.b.	Mil. U.S.\$	5,773	5,878	6,340
Total ag. exp. 1/	do.	3,327	3,378	NA
Tot. imp., c.i.f.	do.	6,008	6,047	6,520
Tot. ag. imp., 1/ 2/	do.	298	293	NA
Bal. of total trade	do.	-235	-169	-180
Bal. of ag. trade 1/	do.	3,029	3,085	NA
Balance w/the U.S.	do.	-23	NA	NA
Bal. of ag. trade	do.	NA	NA	NA
Share of tot. to U.S.	Percent	14	NA	NA
Ag. commodities	do.	17	16	NA
Share from U.S.	do.	16	NA	NA
Ag. commodities	do.	NA	10	NA
<u>Other Indicators:</u>				
Exchange rate	\$NZ/\$US	2.01	1.91	1.94
CPI	1980=100	176.2	196.5	217.0
Growth in CPI	Percent	15.4	11.5	10.4
Population	Million	3.3	3.2	3.3
Pop. growth rate	Percent	0.8	-0.2	0.9
Per capita GDP	U.S. dollars	7,185	8,770	9,590

NA = Not available.

1/ July-June years; 1983/84=1984. 2/ Food, beverages, and tobacco.

SOURCES: Wharton World Economic Outlook, April 1987; New Zealand Department of Statistics; USDA, FAS.

Interest rates were very high in 1985 and 1986, declining significantly in the second half of 1986. In 1985/86, the New Zealand dollar averaged 12.5 percent above 1984/85 (the year immediately following devaluation.) Analysts who had expected the agricultural sector to benefit from a weakening dollar early in 1986 were disappointed, as the New Zealand dollar did not fall appreciably until August 1986. The currency is forecast to remain higher than exporters would like at least through 1987.

The New Zealand dollar's relative strength in 1985/86 was considered a major factor in agriculture's difficulties. The New Zealand Meat and Wool Board's Economic Service estimates that a 10-percent decline in the New Zealand dollar increases beef prices 14 percent, lamb prices 31 percent, and mutton prices 57 percent; and that a 10-percent currency appreciation decreases beef prices 12 percent, lamb prices 25 percent, and mutton prices 46 percent.



The economy may begin a slow recovery in 1987. Lower interest rates and personal income taxes should allow some growth in economic activity. Inflation is expected to improve, perhaps dropping below 10 percent.

#### *Drought and Poor Prices Reduce 1986/87 Production*

In June 1986 the Government of New Zealand forgave the Dairy Board's \$NZ 750 million, 40-year debt in return for a payment of \$NZ150 million. The annual interest rate subsidy on the debt had exceeded \$NZ100 million. This debt had accumulated in the early 1980's as the Dairy Board raised returns to farmers while export returns fell. The Government also guaranteed Dairy Board borrowings (to defined and decreasing limits) for 5 years. Legislation was changed in order to terminate the Government's involvement in milk price-setting.

Milk production increased 5 percent in 1985/86 (June-May) to a record high because of good weather and 2.5-percent growth in cow numbers. Poor export returns caused the Dairy Board to reduce the basic milkfat price from \$NZ 4.00/kg. to \$2.25 for the 1986/87

season. The Dairy Board also introduced voluntary programs to reduce milkfat production. A cold winter followed by a dry spring and summer accomplished this reduction despite the lack of response to the Dairy Board programs. Output is expected to decline 15 percent in 1986/87 to the lowest level since 1982/83.

In November and again in February the Dairy Board raised the basic price, now at \$NZ3.20. The smaller supply should be easier to sell profitably, and the outlook for the world market is improving.

New Zealand's sheep herd is shrinking because of the poor outlook for sheepmeat. The lamb crop was down 4 percent in 1985/86 as producers emphasized wool production. Meat workers staged a 7-week strike during February-April 1986, disrupting lamb and sheep slaughter schedules and causing sizable losses to many farmers. Lamb production fell 9 percent and mutton production 34 percent in 1985/86. Lamb prices received by farmers were less than half of 1984/85 returns, and farm-gate mutton prices were actually negative because slaughter charges exceeded the value of the meat. The value of the skin more than offset this loss in most cases. However, for some classes of stock, farmers received a bill rather than payment from the slaughterhouse. Thus, an estimated 1.6 million sheep were slaughtered on the farm or slaughtered directly for rendering into tallow.

The base sheep herd fell marginally in the year preceding June 1986 and may decline to 66 million head in June 1987. Matings were down, and the percentage of live lambs per mated ewe will probably return to normal levels after two good seasons. Lamb slaughter will continue to decline, and weights should be lower. Some recovery in lamb prices is occurring. Mutton prices may deteriorate further, limiting meat production.

Beef and veal production was about the same in 1985/86 (October-September) as the year before as farmers continued to build herds. The meatworkers' strike had a limited effect because of excess capacity for cattle slaughtering. The base beef herd (excluding slaughter animals) was up 4 percent in June 1986. Beef prices fell 27 percent in 1985/86, but cattle raising remains a stronger

Agricultural production in New Zealand

Commodity	1984	1985	1986	1986/85
	1,000 tons		Percent	
Milk	7,687	7,876	8,202	104
Beef & veal	433	487	466	96
Wool	364	375	358	95
Mutton & lamb	668	728	611	84
Kiwifruit	64	78	99	126
Poultry meat	41	50	54	108
Barley	571	644	607	94
Indices of production	1976-78 = 100			
Crops	116	119	129	109
Livestock	107	114	108	95
Total				
agriculture	107	115	111	96
Per capita				
agriculture	103	110	105	95

NOTE: Commodities shown are in order of importance in 1985 gross agricultural income and represent over 90 percent of total agricultural output.

SOURCES: Economic Research Service, USDA, World Indices of Agricultural Production.

Farm and consumer food prices  
in New Zealand 1/

Commodity	1983/84	1984/85	1985/86	1986/ 1985
	\$NZ/ton		Percent	
Milkfat	3,500	3,960	4,000	101
Beef	3,400	4,281	3,584	84
Wool	2,963	3,774	3,507	93
Lamb	2,025	2,473	2,271	92
Mutton	1,323	1,565	1,350	86
Kiwifruit	2,811	2,761	2,921	106
Apples	698	735	735	100
Barley	207	203	163	80
Consumer price indices 2/	Dec. quarter 1983 = 100			
Food	104	119	133	111
Meat, fish, & poultry	102	112	115	102
Fruits & vegetables	101	112	130	116

1/ Milkfat price is basic price. Wool price is at auction. Other prices are export unit values. 2/ Calendar year, 1985/86 = 1986.

SOURCES: New Zealand Department of Statistics and Foreign Agricultural Service, USDA.

enterprise than sheep for meat. Beef and veal production may increase sharply in 1986/87, partly because more retained dairy calves will reach slaughter weight.

During 1982-1984 the New Zealand Meat Producers Board accumulated a \$NZ971 million deficit in its stabilization account with the Reserve Bank. World demand for sheepmeats had deteriorated as New Zealand's production expanded. Lengthy negotiations between the Meat Board and the Government concerning the disposition of this debt were concluded in March 1987. The Government agreed to write off the debt. Minimum and trigger prices were set at inoperative levels for the 1986/87 season, so that the Meat Board would make no payouts that would have increased its debt and farmers would not pay into the reserve fund.

Because of the importance of the Iran market for sheepmeat, the Government agreed to guarantee Meat Board borrowings to finance lamb sales to Iran.

Private companies are taking over marketing functions of the Meat Board. The

industry is becoming more responsive to market signals. The pricing system is adjusting to improve incentives to farmers to breed and raise animals that meet consumer demands. Increasing processed-product exports remains a priority.

Wool production declined 4 percent in 1985/86 (July-June) because of a smaller herd and reduced clip per head. Production is expected to rise marginally this year. The per-head clip should improve, and the late lamb kill shifted wool production to this season. Wool prices declined 8 percent last year, but are recovering because of strong world demand for coarse wools.

The area planted to wheat and barley dropped 22 percent in 1986/87. Returns have been disappointing because of low world prices. Some of the area that went into grain production in 1984 and 1985 is being returned to pasture, and some area is being planted to other crops. Wheat industry deregulation became effective February 1, 1987.

### *Agricultural Exports Decline*

The value of New Zealand agricultural exports fell 10 percent in 1985/86 (July-June) to \$NZ6.3 billion (\$US 3.4 billion) because of reduced meat supplies and lower \$NZ-denominated prices. Some recovery is anticipated this year.

Beef and veal exports declined 17 percent in volume; shipments were down to all major markets. Exports are likely to recover this year. Lamb exports fell for the fourth straight year. Sharp declines to the Middle East and the United Kingdom offset gains to other markets. Shipments may decrease further in 1986/87. Mutton exports rose 8 percent; shipments were up to all major markets except Japan. Exports this year will depend on prices recovering to profitable levels. Live sheep exports totaled .4 million head in 1985/86 and are expected to reach .9 million in 1986/87.

Wool exports dropped 11 percent in 1985/86; shipments were lower to Western Europe, Japan, and China. Exports should recover somewhat this year.



New Zealand's major agricultural exports and principal markets

	1984/85		1985/86		Principal markets
	Quantity	Value	Quantity	Value	
	1,000 tons	\$NZ Mil.	1,000 tons	\$NZ Mil.	
Dairy products	--	1,689	--	1,750	
Butter	174	636	191	539	United Kingdom (UK), Iran, Algeria, USSR
Milk powders	296	506	330	541	Malaysia, Mexico, Indonesia, USSR, Algeria
Casein	78	265	73	252	United States (USA), Japan
Cheese	86	257	90	267	Japan, USA, UK, Australia,
Wool, clean equiv.	278	1,475	283	1,281	UK, USSR, Japan, China, Other European Community (EC)
Lamb 1/	412	1,019	357	812	Iran, UK
Beef & veal 1/	222	952	193	692	USA, Canada, Japan
Hides & skins	--	356	--	320	EC, Japan, USA
Kiwifruit, fresh	62	172	101	295	Japan, West Germany, USA, France
Mutton 1/	84	131	91	123	Japan, UK, USSR
Apples, fresh	147	108	156	115	EC, USA
TOTAL	--	6,935	--	6,256	

1/ Shipped weight.

SOURCES: New Zealand Department of Statistics; Agricultural Review Committee; ERS.

Dairy product exports declined 4 percent in value from 1984/85's record high. However, the volume index rose 8 percent. Butter export volume rose 8 percent, mostly because of large sales to the USSR. Anhydrous milkfat exports declined. Milk powder exports rose 12 percent; shipments rose to Asia and the USSR. Cheese exports were up 8 percent, with a 33-percent increase to the United States. Casein exports declined 1 percent.

The value of fruit and vegetable exports expanded 32 percent to 3 times the 1981/82 value. Kiwifruit export volume jumped 62 percent; apples, 6 percent.

### *U.S. Agricultural Exports Increasing*

U.S. agricultural exports to New Zealand increased 20 percent in value in fiscal 1986. Most of the gain was in shipments of live horses. Exports of flavoring syrups and extracts also increased.

### U.S. agricultural exports to New Zealand

Commodity groups	Fiscal years		
	1985	1986	1987(f)
Million dollars			
Animals & animal prods.	2.5	10.0	12.0
Grains & feeds	.8	1.0	1.0
Fruits & preparations	10.0	10.2	11.0
Nuts & preparations	4.3	3.2	3.0
Oilseeds & products	3.1	1.8	2.0
Tobacco	7.0	5.4	4.0
Other	3.8	6.2	6.0
TOTAL	31.5	37.8	39.0

SOURCE: Bureau of the Census, Department of Commerce; ERS estimates.

New Zealand agriculture's adjustment to the country's new economic policies is slow and difficult. High interest rates support the currency against the U.S. dollar, further depressing export returns. Most commodity exports face weak foreign demand. Severe inflation damages farmers' terms of trade via escalating processing and marketing charges.

Some livestock producers will be forced by high debt burdens to leave farming. Most will diversify, investing outside of agriculture as well as in other farming enterprises. The sheep herd may decline to around 62 million head by 1990; the herd was at that size in 1979. Cattle, goat, and deer numbers are likely to expand because of anticipated favorable returns. [Sally B. Byrne (202) 786-1611]

Commodity	1984	1985	1986
Million dollars			
Beef & veal	297.6	320.1	292.6
Sheepmeat	10.8	27.0	15.0
Dairy products	144.5	134.0	144.4
Casein	95.2	86.4	91.9
Cheese	42.4	37.4	42.7
Wool	38.8	30.9	36.9
Sheep & lamb skins	16.1	15.6	14.5
Fruits, nuts, & veg.	36.2	41.8	54.0
Fruit, fr. & froz.	32.1	38.9	47.7
Other	37.2	39.5	45.3
TOTAL	581.1	608.9	602.7
1,000 tons			
Beef & veal	145.6	173.6	169.3
Sheepmeat	7.1	12.0	7.0
Casein	43.0	46.3	48.2
Cheese	21.4	20.1	21.7
Wool	15.2	12.8	14.8
Sheep & lamb skins	5.7	4.5	4.0
Fruit, fr. & froz.	25.5	40.4	40.5

SOURCE: Bureau of the Census, U.S. Dept. of Commerce.



# CONSUMPTION, PRODUCTION, AND TRADE OF MAJOR AGRICULTURAL COMMODITIES IN EAST ASIA—PROJECTIONS TO 1995

John H. Dyck\*

**Abstract:** Projections are made for the supply and demand of livestock products, grains, soy products, and cotton in East Asia in 1990 and 1995.

**Keywords:** East Asia, Japan, South Korea, Taiwan, Hong Kong, projections, livestock, feed, cotton.

## Introduction

The market economies of East Asia—Japan, South Korea, Taiwan, and Hong Kong—occupy a role in agricultural trade far greater than the size of their populations. In recent years they have accounted for over a fourth of the world's imports of coarse grains and soybeans, and over a third of the world's imports of cotton. Their imports of wheat and livestock products have also formed a large share of world trade. The United States supplies many of these imports, and the importance of the East Asian market to future exports of U.S. farm products is hard to exaggerate. This article assesses the prospects for growth in the region's imports by projecting East Asia's supply, demand, and trade of major bulk commodities in 1990 and 1995.

## Methods

The projections are the result of calculations made on individual spreadsheets for Japan, Korea, Taiwan, and Hong Kong. Data available in early 1987 form the basis for the calculations. Current government policies and current relative prices were assumed constant throughout the period, with a few exceptions. Income elasticity estimates were

used to calculate the future consumption of five livestock products: beef, pork, poultry meat, eggs, and milk.

Educated guesses about future rates of self-sufficiency in the livestock products led to estimates of their production and trade. Feed conversion rates for each of the livestock products translated production into the use of feedgrains and oilseed meals. Income elasticity estimates for nonfeed uses of grains and oilseed products, together with the feed usage, gave estimates of total consumption. Assumptions about area and yield imply future domestic crop production; consumption less production was assumed to equal import projections for grains and oilseeds. For oilseeds, crushing was assumed to proceed until the demand for vegetable oil was met. Judgments about future export prospects for cotton textile products and the likelihood of cotton yarn imports from outside the region guided the raw cotton use and import projections.

## Economic Conditions

The projections used relatively optimistic forecasts of real economic growth: 4 percent annual increases in real gross domestic product (GDP) for Japan and Hong Kong, and 6 1/2-percent growth for Taiwan and South Korea.

For Japan, the growth rate assumes that the country's export performance will rebound from the effects of the yen's high value, and that domestic consumption will grow in line with government policies. In Hong Kong, uncertainty associated with its reversion to China in 1997, as well as the protectionist

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textile policies of major trading partners, are likely to keep growth below that of Taiwan and South Korea.

Taiwan and South Korea are prospering because of excellent merchandise exports, partly the result of the stability of their currencies against the dollar. Continued economic growth at present levels through the next decade is unlikely, but the groundwork already laid for exports of electronic and automotive products, ships, and steel means that the two economies' prospects are bright.

All four economies would suffer badly from any general downturn in world trade resulting from recession in the developed world. The economies of South Korea, Hong Kong, and Taiwan are probably most at risk because of their proportionally greater reliance on exports. The projections assume that no sharp downturn will occur.

Population growth, projected at slightly slower rates than in previous years, reflects continuing urbanization and the increasing participation of women in the labor force. No significant immigration is expected to offset declining birth rates.

### *Livestock Products*

Consumption of meat and dairy products grew quickly in the 1970's and 1980's, starting from a low base. However, in comparison to developed countries' diets, consumption of most meat and dairy products remains low. Therefore, continued rapid expansion in certain meat and dairy products is forecast. The prices of fish and shellfish products, important substitutes for livestock products, are assumed to remain high relative to meat throughout the period.

The rate of consumption per person of products whose income elasticity is greater than 1 grows faster than the rate of income growth per person. In the U.S. and Europe, income elasticities for food are rarely over 1. But in East Asia, income elasticities for livestock products are very high.

Income elasticities for beef are estimated at 1.66 in Japan, 1.32 in South Korea, and .96 in Taiwan. An elasticity of .96 is assumed for Hong Kong. These high elasticities mean that

demand will grow very rapidly. Whether supply will grow as quickly is a major issue in the agricultural policy debates of East Asia. In the projections, Japan is expected to increase domestic beef output by using animals from the expanding dairy herd, by increasing the numbers of grain-fed beef animals, and by continuing to admit imports of edible beef offal. In addition, a policy change to allow substantial increases in beef imports (now limited by quotas scheduled to expire in March 1988) is required if the projected levels of demand are to be met. South Korea, too, is expected to increase meat production from dairy and beef animals and to import growing amounts of beef. Taiwan's consumption is so small that increases in imports and a modest growth in production should not strain the agricultural economy.

Like beef, milk consumption is expected to continue rapid growth throughout the region. Income elasticities estimated for South Korea are extremely high— 2 or 3. Growth in the projection period is expected to be slower than in the past, partly because the rate of population growth has slowed, and the number of children will no longer rise so fast. An elasticity of 1.5 was assumed for South Korea for the projection period. Lower elasticities were used for Japan, Taiwan, and Hong Kong. Because of limited land for pasture and forage crops, expanding production to meet demand will be difficult everywhere in the region, and will rely on the use of concentrate feeds.

Income elasticities assumed for pork range from .45 in Taiwan to 1 in Japan. Because pork production requires little land, expansion of production is possible throughout the region; pollution problems may limit growth. Poultry meat consumption is projected to grow more quickly than that of pork in all four economies. Much of the growth is expected to come from the increased use of chicken in fast foods. East Asia's consumers place an increasingly high value on time, and the participation of women in the work force has made home cooking more costly. Fast food saves time, in a sense reducing its price to consumers. Income elasticities for poultry meat were assumed to continue at quite high levels in the projection in order to capture the expected high growth. Despite the scope for increased production,



imports of pork and poultry meat from lower cost exporters are expected to increase.

### *Feed Use*

The strong growth in livestock product consumption will largely be satisfied by domestic production. This is partly because domestic production of eggs, poultry meat, and pork has become more efficient and has a transportation advantage, and partly because Japan, Taiwan, and South Korea maintain protectionist trade barriers that hinder imports of most livestock products, especially beef and dairy products.

Recently available data have allowed better estimates of feed conversion rates (feed used per ton of livestock product) for Japan, South Korea, and Taiwan. The data for Japan are fairly comprehensive and of high quality; those for South Korea and Taiwan are neither as detailed nor as reliable, but offer a better picture of animal feeding in those countries than existed before. For Japan, the feed conversion rates for beef and milk do not appear to have risen in recent years, despite a belief that increased production would require more intensive use of concentrate feeds. In consequence, projected conversion rates for beef and milk are held at current levels. Because of constraints on pasture and forage crops in Japan, the feed use projections may now err on the low side.

Feed conversion rates in South Korea and Taiwan were projected to remain at current levels, except that feeding of grain for milk and broiler production in South Korea was assumed to become slightly more efficient over the forecast period. Thus, feed conversion rates in the projections were generally held constant at current levels, rather than rising as in previous projections (see 1, 2, and 5). 1/

For the past decade, grain feeding in East Asia has been primarily corn, sorghum, and barley. The emergence of wheat as a principal feed in South Korea since 1983, in response to low wheat prices, may foreshadow increased feed wheat imports by Taiwan and Hong

Kong. The projections do not reflect this, instead keeping the feedgrain composition in 1990 and 1995 the same as in 1985-87.

In Japan and Taiwan, rice surpluses have caused problems and some rice has been diverted to feed use. Because this is extremely costly, it is not expected to reoccur in Japan, and not projected to grow above the current 300,000 tons in Taiwan. However, unusually good weather or other circumstances could lead to more feeding of rice on a sporadic basis.

The feed projections were made only for grains and oilseed meals. They assume that these feed components would have the same share in animal feeds that they have at present. However, the relative share of milling byproducts (chiefly bran) may decline in the future, and the share of animal protein meals may change; these developments could affect the shares of grains and oilseed meals.

Among the oilseed meals, the projected share of soybean meal was generally held at present levels. If nonsoy meals offer a substantial, continued price advantage, the share of soymeal might decline. However, soymeal's universal acceptability in feed rations gives it an edge throughout the projection period.

### *Food Grains*

One consequence of the increase in consumption of livestock products is the substitution of these products for other foods. This is one reason why foodgrain consumption per person in East Asia is declining. Another reason is that government policies force up the consumer prices of rice so that consumers buy less. This is true in Japan, South Korea, and, to a lesser extent, Taiwan. The high rice price policies, as well as the substitution of other foods for grain, are expected to continue. Adjustment to the current high price of rice relative to other foods may not yet be complete. The negative income elasticity estimates do not fully account for own-price and cross-price effects, and consumption per person may fall off even more than projected.

Although grain consumption per person is forecast to fall in all the markets except Hong Kong, in South Korea population growth should

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1/ Underscored numbers refer to literature cited at the end of this report.



make total consumption rise. In contrast to an earlier projection (see 2), South Korea's rice area and yields are projected to remain constant; given rising total consumption and a constant level of production, South Korea's supply-demand balance may become tight in the mid- 1990s.

Taiwan and Japan will encounter a different problem: falling total consumption will lead to unacceptably high stocks of rice unless the area harvested is reduced, exports are increased, or rice is used heavily as a feed. Japan is expected to expand its rice diversion programs, reducing the rice area about 300,000 ha by 1995. Taiwan is expected to hold to its present diversion program, to continue some rice feeding, and to increase its exports in the 1990s.

Nonfeed uses of wheat will show little growth over the period. Industrial uses are not expected to grow, and food use per person should remain flat, with substitution away from grains in general balancing the attraction of the convenience of many wheat foods (noodles, bread, etc.). Wheat production in Japan is projected to show a minor increase on land diverted away from rice. Korea's production of barley for food is expected to decline to low levels by 1995, as a result of falling consumption.

#### *Vegetable Oils and Oilseeds*

Consumption per person of vegetable oils is expected to increase in the whole region, with the sharpest increases in South Korea and Taiwan. The use of these oils in processed and fast foods will ensure their increased consumption. Some substitution of vegetable oils for animal fats may also occur. Growth is forecast for all vegetable oils. Soy oil is expected to hold its current share of just under half of the region's vegetable oil market.

The projections assume that oilseed imports for crushing will be limited by oil needs. To the extent that the meal output from crushing falls short of feed demand, oilmeals will be imported. Food use of soybeans may grow faster in Taiwan and South Korea than in Japan or Hong Kong, where use per person is projected to remain constant. A slight increase in soybean area in Japan (part of the rice diversion program) is forecast to

provide most of the additional beans for food use that Japan will need for its 1995 population.

The crush of other oilseeds is projected to increase only in Japan. Should South Korea or Taiwan expand their crushing capacity for other oilseeds, the share of soy products in the oil and meal markets could decrease. The food use of other oilseeds (chiefly peanuts) is expected to increase modestly. Data showing strong growth in "nonfeed" uses for other oilseed meals in Japan in recent years were assumed to reflect simple feed sales, rather than sales as part of premixed concentrates.

#### *Cotton*

Limited information about world textile prospects, and considerable uncertainty about trade barriers facing East Asia's textile exports, make projections of the region's cotton imports difficult. In light of the current strong performance of the cotton-using textile industries in Taiwan, South Korea, and Hong Kong, previous projections of 1990 cotton use (see 2 and 9) now seem conservative, and have been raised. Japan's cotton spinning industry was already threatened by lower cost foreign competition before the rise of the yen relative to competitors' currencies. The previous projection for 1990 (see 9) has been retained, but if the yen remains strong relative to other East Asian currencies, it may be optimistic.

Cotton use in the 1990s depends on East Asia's textile export performance, on the cotton content of fabrics, and on where raw cotton is spun into yarn. East Asia's textile exports are unlikely to shrink. Recent investment has made its industries more efficient and more able to raise the quality of textile output. If cotton content in fabrics remains high, as at present, the region's use of cotton yarn in 1995 should rise above the projected 1990 levels, unless bilateral trade agreements negotiated with leading textile importing countries become more restrictive. A switch to global import quotas by the United States or other importers would probably benefit East Asian industries, whose costs (still low relative to some other exporters), investment in equipment, and experience would make them formidable competitors with other textile-exporting nations.



While cotton yarn use should rise in the 1990s, raw cotton use and imports may be replaced somewhat by imports of cotton yarn from lower cost spinning industries, such as that of China. This is especially true for Japan. For Taiwan, Hong Kong, and South Korea, growth in raw cotton use is likely to grow at a slower rate than in the 1980s, because competition in the textile export market and from yarn imported from outside the region is expected to intensify.

#### *Implications and Evaluation of the Projections*

The projections show growth in imports of almost all the commodities covered. Imports of cotton should grow 12 percent from the average of 1984/85 and 1985/86 to 1994/95. The region's net rice imports should continue at their current modest levels through 1995. As in the past decade, livestock products and the feeds to produce them will continue to be the main cause of growth in the region's agricultural imports. Comparing 1995 projections to the average of 1985 and 1986 levels, net regional imports of beef are expected to grow by almost 150 percent, pork by over 60 percent, and poultry meat by about 35 percent.

Although imports of livestock products will grow rapidly, imports of feedstuffs will still dwarf those of livestock products in volume and value in 1995. The feed use of

grains and soy meal in 1995 will be about 36 percent higher, than the average of 1985 and 1986. This will correspond to a 36-percent growth in coarse grain and soybean imports, and for half of the 14-percent increase in wheat imports projected for the same period. While the percentage increase in imports of feedgrains in the previous decade (1975 to 1985) was much higher, at over 75 percent, the increase forecast for the next decade is from a higher base, and will add almost as much to the region's feedgrain imports in absolute terms as the earlier growth did.

Placing a great deal of confidence in even the most sophisticated forecasts of agricultural supply and demand is risky. The methods used to make these projections are very simple. They basically project the past and present into the future; current government policies and current relative prices were largely assumed to be constant.

Despite obvious oversimplification, however, these projections benefited from expert opinion offered by country specialists and from recently revised, up-to-date data. Furthermore, the forecasts link livestock product demand to feed use and thus to imports of grains and meals, a linkage of primary importance in the East Asian economies. Finally, the new feed conversion factors used in the projections reflect a better understanding of the underlying components of grain and meal use than was previously available.

Table A--Major assumptions made for the projections

	Japan		South Korea		Taiwan		Hong Kong	
	Base period	Proj. period	Base period	Proj. period	Base period	Proj. period	Base period	Proj. period
Percent								
Growth rate of real GDP 1/	3.5	4	8.5	6.5	6.1	6.5	4.7	4
Growth rate of population 1/	.6	.6	1.2	1.2	1.2	1.2	1.1	1.1
Income elasticities 2/	Percentage change in consumption per person/ percentage change in real GDP per person							
Beef	1.66	1.66	1.32	1.32	.96	.96	NA	.96
Pork	1.00	1.00	.71	.71	.45	.45	NA	.60
Poultry meat	1.10	1.10	.87	.87	1.07	1.31 3/	NA	.60
Eggs	NA	.20	.31	.31	.67	.20	NA	.20
Milk	NA	.60	2.57	1.50	1.12	1.12	NA	.60
Rice, nonfeed	-.40	-.20	-.17	-.17	-.42	-.42	NA	0
Wheat, nonfeed	0	0	.09	.09	0	0	NA	.10
Coarse grains, nonfeed	NA	.30	NA	-.1	NA	.30	NA	0
Soybeans, nonfeed	NA	0	.20	.20	.55	.55	NA	0
Vegetable oil	NA	.60	NA	1.00	.59	.59	NA	.60
Feed conversion rates 4/	Kg feed/kg output							
Beef								
Grain	4.46	4.50	4.23	5.00	2.42	4.50	NA	NA
Oilseed meal	.37	.36	.79	.83	.88	.58	NA	NA
Pork								
Grain	3.39	3.38	3.72	3.70	3.22	3.60	NA	3.38
Oilseed meal	.68	.67	.75	.73	.67	.73	NA	.67
Poultry meat								
Grain	2.05	2.02	4.18	3.92 5/	3.34	3.35	NA	2.04
Oilseed meal	.47	.47	.98	.91 5/	.61	.63	NA	.46
Eggs								
Grain	2.13	2.12	2.90	2.85	2.25	2.25	NA	2.12
Oilseed meal	.37	.38	.68	.70	.60	.60	NA	.38
Milk								
Grain	.21	.20	.58	.55	.33	.33	NA	NA
Oilseed meal	.06	.06	.11	.11	.18	.18	NA	NA

NA = Not available or not applicable.

1/ Base period is the average of 1985 and 1986 data.

2/ Income elasticities in the 1985-86 column are econometric estimates for recent periods.

3/ For poultry meat in Taiwan, high income elasticities are projected for 1988, declining each year to 1.31 in 1990 and .80 in 1995.

4/ For Japan, the base is the average of 1984 and 1985. For Korea, it is the average of 1985 and 1986. For Taiwan the base is 1986.

5/ Feed conversion rates for Korea's poultry meat appear to be unreasonably high. They were reduced by 1 percent per year from the 1986 estimate of 4.08 (grain) and .95 (meal), reaching 3.92/.91 in 1990 and 3.72/.86 in 1995; these are still very high feed rates.

SOURCES: Growth rates: author's estimates.

Income elasticities: For Japan, author's estimates for livestock products, and 6 for grains; for Korea 10, for Taiwan, 8.

Feed conversion rates for 1985-86 or other recent years:

for Japan, 7; for South Korea, FAS/Seoul, adjusted byauthor; for Taiwan, 4 and AIT/Taipei, adjusted by author; for Hong Kong, author's estimates.



Table B--Self-sufficiency in major agricultural products

	Beef	Pork	Poultry meat	Eggs	Rice	Wheat	Coarse grains	Soybeans
Production as a percent of consumption and change in stocks								
Japan								
1985	63	85	93	95	100	14	2	5
1986	61	84	92	94	100	14	2	4
1990	52	84	92	97	100	14	2	4
1995	44	84	92	97	100	14	1	4
South Korea								
1985	98	100	100	100	100	--	15	19
1986	100	100	100	100	100	--	13	16
1990	87	100	100	100	100	--	7	15
1995	80	100	100	100	100	--	4	11
Taiwan								
1985	12	113	100	100	102	--	8	1
1986	9	118	100	100	110	--	7	1
1990	22	110	100	100	107	--	6	1
1995	22	110	100	100	112	--	5	1
Hong Kong								
1985	0	18	32	5	0	0	0	0
1986	0	18	30	5	0	0	0	0
1990	0	18	26	5	0	0	0	0
1995	0	18	26	5	0	0	0	0

-- = Negligible.

1/ While production and stock data (except for rice) are on an unrefined, untrimmed basis, the consumption figures used include trade data for imports that are sometimes semiprocessed, such as egg yolks or boneless meat. This tends to raise the self-sufficiency rate for importing countries.

Table C--Gross consumption 1/ per person

	Beef	Pork	Poultry meat	Eggs	Milk 2/	Rice, milled (nonfeed)	Wheat (nonfeed)	Coarse grains (nonfeed)	Soybeans (nonfeed)
Kilograms per year									
Japan									
1985	7.16	14.26	12.18	18.63	60.98	83.8	50.9	29.0	9.45
1986	7.51	14.84	12.46	18.87	61.88	82.2	50.3	30.6	9.38
1990	9.02	16.65	14.04	18.95	64.08	77.3	50.7	31.4	9.41
1995	11.83	19.64	16.84	19.10	70.81	74.7	50.7	33.0	9.43
South Korea									
1985	4.09	8.44	3.11	7.42	23.48	140.8	49.7	37.1	9.00
1986	4.62	8.41	3.17	7.79	27.45	134.6	49.3	37.7	8.89
1990	5.85	9.52	3.69	8.23	38.49	129.5	50.4	36.8	9.33
1995	8.24	11.52	4.62	8.98	56.83	123.7	51.5	35.8	9.83
Taiwan									
1985	1.94	38.46	18.05	12.14	4.60	86.1	38.5	12.1	11.35
1986	2.14	37.16	17.98	11.94	5.32	83.1	38.2	16.6	11.94
1990	2.72	39.41	23.89	12.48	6.83	75.4	38.3	18.2	13.47
1995	3.47	44.51	30.19	13.15	9.15	67.3	38.4	20.2	15.54
Hong Kong 3/									
1985	14.38	48.13	29.32	15.12	NA	67.3	37.1	.2	3.5
1986	13.32	47.81	33.03	15.11	NA	67.5	38.9	.2	3.3
1990	14.31	50.00	35.34	15.34	NA	67.6	39.1	.2	3.3
1995	15.87	52.70	37.94	15.71	NA	67.8	39.2	.2	3.3

NA = Not available.

1/ Consumption is calculated as production plus net trade, adjusted for changes in stocks. No conversions to a net food basis have been made; meats are in carcass weight, wheat and coarse grains are on an unmilled basis. Industrial uses, waste, and other nonfeed, nonfood uses are included. These estimates cannot be compared directly to those in 1, 3, and 5.

2/ No adjustments for trade in dairy products or for processing have been made. Figures are for raw milk production, divided by population.

3/ Estimates include carcass weight equivalents of live animal imports.

Table D--Livestock product supply, demand, and trade

	1985	1986	1990	1995
	1,000 M.T. 1/			
Japan				
Beef (incl. beef offal)				
Production	555	545	584	665
Demand, gross	866	913	1,122	1,518
Net imports	303	353	545	863
Pork				
Production	1,531	1,500	1,743	2,121
Demand, gross	1,725	1,805	2,071	2,520
Net imports	271	294	332	404
Chicken meat				
Production	1,395	1,399	1,610	1,991
Demand, gross	1,474	1,515	1,747	2,160
Net imports	105	175	140	173
Eggs				
Production	2,142	2,178	2,288	2,377
Demand, gross	2,254	2,294	2,358	2,451
Net imports	112	135	71	74
Milk, raw				
Production	7,378	7,525	7,972	9,085
Korea, Republic of (South)				
Beef				
Production	161	190	223	306
Demand, gross	168	192	255	380
Net imports	4	0	33	76
Pork				
Production	346	350	415	531
Demand	347	350	415	531
Net imports	0	0	0	0
Chicken meat				
Production	128	132	161	213
Demand, gross	128	132	161	213
Net imports	0	0	0	0
Eggs				
Production	315	324	359	415
Demand, gross	315	324	359	415
Net imports	0	0	0	0
Milk, raw				
Production	967	1,149	1,683	2,630

1/ Quantities are in carcass weight equivalents.

Continued--

Table D--Livestock product supply, demand, and trade--Continued

	1985	1986	1990	1995
	1,000 M.T. 1/			
Taiwan				
Beef				
Production	4	4	12	16
Demand	37	42	55	74
Net imports	33	36	43	58
Pork				
Production	831	849	876	1,043
Demand	735	719	796	948
Net imports	-67	-86	-80	-95
Chicken and duck meat				
Production	345	348	482	643
Demand	345	348	482	643
Net imports	0	0	0	0
Eggs, hen and duck				
Production	232	231	252	280
Demand	232	231	252	280
Net imports	0	0	0	0
Milk, raw				
Production	88	90	138	195
Hong Kong 2/				
Beef				
Production	0	0	0	0
Demand, gross	78	73	83	100
Net imports	79	73	83	100
Pork				
Production	47	48	52	60
Demand, gross	261	262	290	332
Net imports	214	214	238	272
Chicken meat				
Production	51	55	53	62
Demand, gross	159	181	205	239
Net imports	109	126	152	177
Eggs				
Production	4	4	4	5
Demand, gross	82	83	89	99
Net imports	86	87	85	94
Milk, raw				
Production	0	0	0	0

2/ Meat estimates for Hong Kong include the carcass weight equivalents of live animal imports.

Table E--Feed use by livestock product

	Milk		Beef		Pork		Poultry meat		Eggs		Other and unaccounted for		Total	
	1985	1995	1985	1995	1985	1995	1985	1995	1985	1995	1985	1995	1985	1995
	----- Percent of total -----													--- 1,000 M.T. ---
Grains 1/														
Japan	8.4	7.9	13.5	13.0	28.7	31.1	15.5	17.4	25.2	21.9	8.7	8.7	18,070	23,056
South Korea	14.2	20.9	17.3	22.1	28.9	28.7	12.6	11.3	21.5	17.3	5.4	0	4,488	6,917
Taiwan 2/	.6	.9	.3	1.0	55.4	51.5	24.3	29.5	10.9	8.6	8.5	8.5	4,571	7,295
Hong Kong 3/	0	0	0	0	42.9	59.0	34.9	36.6	2.9	3.2	18.9	1.3	275	344
Oilseed meals 4/														
Japan	13.7	12.2	6.2	5.4	31.1	31.9	18.8	21.0	23.2	20.3	7.0	9.2	3,408	4,454
South Korea	12.2	19.3	14.9	17.0	28.0	25.9	14.4	12.2	24.5	19.5	6.1	6.1	898	1,496
Taiwan 2/	1.4	2.1	.5	.5	48.8	45.3	19.0	24.1	12.3	10.0	18.0	18.0	1,116	1,681
Hong Kong 3/	0	0	0	0	31.5	40.8	30.1	29.6	1.4	2.0	37.0	27.4	73	98

1/ Grains include coarse grains, wheat, and rice.

2/ For Taiwan, the earlier year is 1986.

3/ For Hong Kong, the earlier year is 1983.

4/ Oilseed meals include soy, rapeseed, cottonseed, sunflowerseed, and peanut meals.



Table F--Grain supply, demand, and trade

	1985	1986	1990	1995
	1,000 M.T.			
Japan				
Rice, milled				
Area 2/	2,342	2,303	2,113	2,010
Production	10,612	10,599	9,635	9,367
Nonfeed use	10,136	10,000	9,612	9,584
Feed use	14	0	0	0
Net imports	20	20	20	20
Ending stocks	1,110	1,729	1,825	1,327
Wheat				
Area 2/	234	246	262	275
Production	874	876	891	935
Nonfeed use	6,161	6,118	6,305	6,504
Feed use	99	142	200	231
Net imports	5,532	5,500	5,623	5,810
Coarse grains				
Area 2/	117	111	123	128
Production	390	353	400	416
Nonfeed use	3,532	3,551	3,900	4,228
Feed use	17,957	18,239	19,761	22,825
Net imports	21,509	21,560	23,328	26,716
Korea				
Rice, milled				
Area 2/	1,237	1,236	1,230	1,230
Production	5,626	5,607	5,572	5,572
Nonfeed use	5,787	5,600	5,648	5,704
Feed use	0	0	0	0
Net imports	0	0	0	0
Ending stocks	1,271	1,278	969	413
Wheat				
Area 2/	2	2	3	3
Production	5	5	8	8
Nonfeed use	2,041	2,050	2,194	2,377
Feed use	1,104	1,650	1,329	1,729
Net imports	3,032	3,800	3,521	4,107
Coarse grains				
Area 2/	269	222	140	100
Production	710	590	381	277
Nonfeed use	1,523	1,567	1,232	1,267
Feed use	3,225	2,838	3,986	5,188
Net imports	3,950	3,800	5,229	6,586

Continued--

Table F--Grain supply, demand, and trade--Continued

	1985	1986	1990	1995
	1,000 M.T.			
Taiwan				
Rice, milled				
Area 2/	564	560	560	560
Production	1,956	1,920	1,938	1,938
Nonfeed use	1,684	1,610	1,523	1,433
Feed use	300	300	300	300
Net imports	-76	-300	-122	-208
Ending stocks	873	583	602	572
Wheat				
Area 2/	1	1	1	1
Production	2	2	2	2
Nonfeed use	735	740	773	817
Feed use	0	0	0	0
Net imports	692	750	773	817
Coarse grains				
Area 2/	99	102	100	100
Production	374	392	377	377
Nonfeed use	232	302	368	431
Feed use	4,271	4,490	5,641	6,995
Net imports	4,180	4,450	5,660	7,080
Hong Kong				
Rice, milled				
Area 2/	0	0	0	0
Production	0	0	0	0
Nonfeed use	365	370	392	427
Feed use	0	0	0	0
Net imports	370	370	393	428
Ending stocks	65	65	69	75
Wheat 1/				
Area 2/	0	0	0	0
Production	0	0	0	0
Nonfeed use	201	213	227	247
Feed use	0	0	0	0
Net imports	201	213	227	247
Coarse grains				
Area 2/	0	0	0	0
Production	0	0	0	0
Nonfeed use	1	1	1	1
Feed use	260	220	296	344
Net imports	243	205	297	345

1/ Includes the wheat equivalent of net wheat flour imports.  
2/ Thousand hectares.

Table G--Soy product supply, demand and trade

	1985	1986	1990	1995
	1,000 M.T.			
Japan				
Soybean				
Area 1/	134	138	145	160
Production	228	245	247	272
Net imports	4,796	4,840	5,382	6,015
Crush	3,907	3,930	4,444	5,061
Nonfeed use	1,150	1,165	1,171	1,210
Soymeal				
Production	3,044	3,065	3,416	3,890
Net imports	233	120	70	110
Use	3,206	3,250	3,483	3,997
Soy oil				
Production	710	715	800	911
Net imports	-2	-2	0	0
Use	701	710	800	911
Korea				
Soybean				
Area 1/	156	133	180	180
Production	234	199	252	252
Net imports	1,005	1,070	1,416	1,946
Crush	850	900	1,259	1,741
Nonfeed use	370	370	407	453
Soymeal				
Production	672	712	1,001	1,385
Imports	127	180	11	0
Use	775	880	1,004	1,372
Soy oil				
Production	146	155	219	303
Net imports	0	0	0	0
Use	145	154	219	302
Taiwan				
Soybean				
Area 1/	9	9	10	10
Production	15	16	17	17
Net imports	1,607	1,700	1,847	2,287
Crush	1,375	1,450	1,575	1,954
Nonfeed use	217	231	272	331
Soymeal				
Production	1,086	1,146	1,271	1,578
Imports	-30	-50	65	57
Use	1,066	1,080	1,333	1,631
Soy oil				
Production	234	247	274	340
Net imports	6	-7	0	0
Use	215	225	273	337
Hong Kong				
Soybean				
Area 1/	0	0	0	0
Production	0	0	0	0
Net imports	20	20	19	21
Crush	0	0	0	0
Nonfeed use	20	20	19	21
Soymeal				
Production	0	0	0	0
Imports	34	58	59	69
Use	39	62	59	69
Soy oil				
Production	0	0	0	0
Net imports	1	1	1	1
Use	1	1	1	1

1/ Thousand hectares.

Table H--Cotton use and imports

	1984/85	1985/86	1989/90	1994/95
	1,000 M.T.			
Japan				
Mill use	694	685	650	630
Net imports	680	665	650	630
South Korea				
Mill use	356	370	404	425
Net imports	349	366	404	425
Taiwan				
Mill use	265	330	375	410
Net imports	282	334	375	410
Hong Kong				
Mill use	143	170	199	210
Net imports	142	170	199	210
Total				
Mill use	1,458	1,555	1,628	1,675
Net imports	1,496	1,535	1,628	1,675

Note: August-July year.

SOURCE: For 1984/85 and 1985/86, USDA. For 1989/90, 1994/95, projections.

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# GOVERNMENT ASSISTANCE IN JAPANESE AGRICULTURE

by

William T. Coyle\*

**Abstract:** Analysis of government assistance to Japanese agriculture during 1982-84 shows that food grains (rice, wheat, and barley), fluid milk, and dairy products were most heavily assisted. Beef, pork, soybean, sugarcane and sugarbeet producers received intermediate levels of assistance. Poultry and citrus producers were more moderately assisted. Japan's overall agricultural assistance level, heavily weighted by rice, was the highest among developed countries, with about three-quarters of the total resulting from border measures.

**Keywords:** Japan, agricultural policy, agricultural trade, consumer subsidy equivalent, government intervention, producer subsidy equivalent.

Producer and consumer subsidy equivalents (PSE's and CSE's) 1/ for 12 Japanese commodities for 1982-84 were calculated as part of a broader ERS project (6) on government intervention in agriculture. 2/ The results confirm the common belief that Japanese farmers are heavily assisted and that Japanese food consumers are heavily taxed (Table A).

Japan's agricultural policies, like those of the United States and the European Community, will come under more intense scrutiny as the GATT signatories continue discussions on agricultural trade this year. Japan is already the world's largest net importer of agricultural products, accounting for 9 percent of the global total. It would be

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1/ A producer subsidy equivalent (PSE) is defined as the level of subsidy that would be necessary to compensate producers for removing existing government support. The percentage PSE is the total value of policy transfers to producers, divided by total producer agricultural income (cash receipts plus net direct payments). PSE's can be

positive or negative. This article refers to positive PSE's as producer assistance or support, and to negative PSE's as producer taxation. Similarly, a consumer subsidy equivalent (CSE) for an agricultural commodity is defined as the amount that would have to be paid to consumers to compensate them for removing agricultural programs. The percentage CSE is expressed as the ratio of the total value of policy transfers received by consumers to total consumer expenditures for that product. CSE's, like PSE's, can be positive (net assistance) or negative (net taxation).

2/ Similar work is being done at the Organization for Economic Cooperation and Development (OECD).



Table A--Producer subsidy equivalents and consumer subsidy equivalents for Japanese agricultural products, 1982-84 averages

Commodity	Self-sufficiency	Percent of agricultural output	Producer subsidy equivalent	Consumer subsidy equivalent	Producer subsidy equivalent	Consumer subsidy equivalent	Portion of producer subsidy equivalent attributable to:	
							Border measures 1/	Budget outlays 2/
		Percent			Dollars per metric ton		Percent	
Grains								
Rice	95	38	84	-66	1,102	-783	82	18
Wheat	12	1	97	-19	945	-61	62	38
Barley	15	1	95	-18	863	-41	60	40
Corn	0	--	NE	-2	NE	-4	NE	NE
Industrial crops & citrus								
Soybeans	6	--	72	0	1,456	0	0	100
Beet sugar	NA	1	67	NA	738	NA	88	12
Cane sugar	NA	--	77	NA	1,138	NA	90	10
Refined sugar	32	NA	NA	-52	NA	-562	NA	NA
Citrus	98	4	8	NE	44	NE	0	100
Livestock products								
Milk for drinking	100	5	87	-33	390	-285	77	23
Milk for manufacturing	69	2	90	-38	320	-144	62	38
Beef	72	5	52	-27	3,165	-2,469	78	22
Pork	86	10	49	-23	1,320	-1,027	78	22
Chicken	92	3	24	-9	289	-181	63	37
Group totals								
Crops	NE	45	76	-48	NA	NA	78	22
Livestock products	NE	25	56	-27	NA	NA	75	25
All commodities in table	45 3/	70	69	-38	NA	NA	77	23

-- = Negligible. NA = Not applicable. NE = Not estimated. A negative number implies a tax.

1/ Includes assistance from tariffs, variable levies, price stabilization schemes linked to import controls, and state trading. 2/ Includes national government programs and assistance from the Livestock Industries Promotion Corporation. 3/ Original calorie basis, including commodities not in this table.

SOURCES: Japanese Ministry of Agriculture, Forestry and Fisheries (MAFF), *Statistical Yearbook*, pp. 500-501 in the 1984/85 issue and equivalent table in previous issues; U.S. Dept. of Agriculture, *World Indices of Agricultural and Food Production, 1975-84*, page 105; International Monetary Fund, *International Financial Statistics Yearbook*, 1985, page 381; ERS estimates.

an even larger market if its pro-farmer policies were removed or reduced in scope.

Government measures to assist Japanese agriculture, while much more extensive now than 20-30 years ago, are not a new phenomenon. They reflect a continuing, deep-seated national concern about food security and stability of the food supply, which is not surprising for a heavily populated, island nation with limited agricultural resources and memories of severe food shortages during and after World War II. That concern is given a political voice by the Liberal Democratic Party (LDP), which has been in power since 1955. The LDP derives much of its political strength from rural districts delineated after World War II, reflecting the predominantly rural character of Japan at the time. Other political parties support farm assistance, and many urban voters still have close family ties with rural areas and identify with rural issues.

Government assistance to Japanese agriculture rose rapidly after passage of the Basic Agricultural Law of 1961, which put new emphasis on raising farm income in light of

rapid productivity growth in the country's nonagricultural sector. Although concerns in the 1970's and 1980's shifted toward coping with instability in world commodity markets, the policy response of heavy support for agriculture was similar to that of the 1960's. Against this pattern of prolonged heavy support, there are recent signs that Government assistance to agriculture may be waning. Budgetary outlays for agriculture have declined since 1981, the key support price for rice has been frozen since 1984, and the support prices for other important commodities have also remained frozen in recent years.

#### *Comparing Assistance in Japan with Other Developed Countries*

In 1982-84, Japanese farmers received the highest level of Government assistance among developed countries (6). The value to Japanese farmers of Government programs (deficiency payments, diversion payments, input subsidies, structural measures, etc.) or border interventions (tariffs, import quotas, and import bans) equaled about 69 percent of

Japanese farm income, about 2 1/2 times the level in the United States and twice the level in the European Community (EC). Overall assistance in Japanese agriculture rose slightly from 1979-81 to 1982-84 as declining budgetary outlays were more than offset by larger indirect subsidies resulting from border measures, or domestic price-support programs linked to border measures. Although detailed calculations were not prepared for 1985-86, low world commodity prices in 1985-86 and a rising yen in 1986 likely pushed the overall assistance level for Japanese agriculture even higher.

## KINDS OF ASSISTANCE

### *Border Measures*

Restrictive border measures, including state trading, import quotas, tariffs, and variable levies, accounted for 77 percent of total Government assistance to Japanese agriculture in 1982-84. 3/

The principal state trading operations providing assistance to Japanese agriculture are the Food Agency, the Livestock Industry Promotion Corporation (LIPC), and the Japan Raw Silk and Sugar Price Stabilization Corporation (JRSSPSC). The Food Agency controls the purchase and marketing of domestic and imported rice, wheat and barley. The central role of rice in Japanese agriculture, and the Food Agency's strict control on imports, are the principal reasons Japanese agriculture is the most heavily assisted among developed countries.

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3/ Assistance resulting from border measures is calculated in two ways:

- o For products protected with an import tariff, a per-unit value of the tariff is applied to all domestic production of the product.
- o For products protected with import quotas (which are often combined with import tariffs), state trading systems, or variable levies a domestic supported price is compared with an external reference price. The difference is then applied to all domestic production.

The LIPC was set up in the early 1960's to stabilize livestock prices. Its market interventions vary depending on the product. The LIPC's greatest and most direct involvement is in the dairy and beef sectors, where it is involved in product procurement, storage, marketing, and trade. It directly controls imports of designated dairy products and most beef.

The JRSSPSC buys and sells domestic beet and cane sugar. All imported sugar is sold to the Corporation and then sold back to refiners or importers- mainly large trading companies associated with a refinery. These paper transactions assure compliance with the terms of the sugar stabilization law, which guarantees support to domestic producers.

Import quotas are imposed on 19 categories of agricultural trade. Some are administered in conjunction with state trading operations (rice, wheat, barley, beef, and dairy products), and others are allocated to trading companies or end users. A variable levy system is used to protect Japanese pork producers by keeping import prices between pre-set floor and ceiling levels. Tariffs are widely used, although their importance in providing assistance has greatly diminished over recent years because of successive tariff reductions and the rise in importance of nontariff trade barriers. Tariffs on bulk farm commodities are generally low, while those on value-added products range as high as 40 percent.

### *Budgetary Programs*

Assistance through budgetary and other direct subsidy programs in 1982-84 accounted for 23 percent of total aid to Japanese agriculture. This assistance is administered mainly by the Ministry of Agriculture, Forestry and Fisheries (MAFF). Budgetary outlays for Ministry programs have declined since 1981. They were about 3.1 trillion yen (\$13.1 billion) in Japan fiscal year 1984 (April 1984-March 1985).

It is difficult to determine exactly what proportion of total Ministry programs directly benefit agriculture. Some programs- about 20 percent of MAFF's total budget- benefit the forestry and fishery sectors. Furthermore, programs that provide for improved roads and



Table 8--Budget of Japan's Ministry of Agriculture, Forestry, and Fisheries

	1982/83	1983/84	1984/85
	Billion yen		
1. Assistance on inputs and structural measures			
a. Land improvement and development 1/	632	631	625
b. Structural improvement 1/	272	255	233
c. Disaster restoration 2/	168	116	72
d. Credit	147	153	156
e. Farmers' annuity	74	79	84
f. Research and extension 2/	88	91	97
g. Marketing 2/	34	33	30
Total for inputs & structural measures	1,415	1,358	1,296
2. Livestock programs	121	108	105
3. Riceland diversion program	365	345	268
4. Soybean program	18	23	20
5. Insurance	158	172	162
6. Food agency	645	577	545
7. Forestry agency	344	350	333
8. Fishery agency	217	217	212
9. Other 1/	169	167	180
10. Total	3,452	3,317	3,122
11. Total allocated to agriculture 3/	2,297	2,176	2,018
	Billion U.S. dollars 3/		
12. Total	13.9	13.9	13.1
13. Total allocated to agriculture 3/	9.2	9.1	8.5

NOTE: The aggregations in this table are based on limited descriptive information about budget categories and are therefore subject to error.

1/ 50 percent of this category is allocated to agriculture. 2/ 80 percent of this category is allocated to agriculture, the remainder to forestry and fisheries. 3/ Excludes items 7 and 8; 50 percent of items 1a, 1b, and 9; and 20 percent of items 1c, 1f, and 1g. 4/ Converted into U.S. dollars using exchange rates of 249 yen/dollar in 1982 and 238 yen/dollar in 1983-84.

SOURCE: MAFF, Statistical Yearbook, 1984/85, pages 582-583 and the equivalent table in previous issues; with reference to revised budget data. Items in this table correspond to the following lines on page 582 of the Yearbook: 1a = 25, 27-29; 1b = 9-11, 14, 19, 30; 1c = 26, 31, 32; 1d = 6; 1e = 13; 1f = 8, 12, 33, 37; 1g = 5, 20, 24; 2 = 16-18; 3 = 21; 4 = 22; 5 = 7; 10 = 1. Items in this table correspond to the following lines on page 583 of the Yearbook: 6 = 8; 7 = 11; 8 = 24. Item 9 is obtained by subtracting items 1-8 from item 10. For exchange rates: International Monetary Fund, International Financial Statistics Yearbook.

flood control, for example, benefit rural residents other than farmers. The great majority of Japanese farmers are part-time, earning more than half of their income from off-farm sources. Thus, many of MAFF's programs benefit households in which most members are employed off the farm.

The largest category of budgetary assistance is broadly defined to include input subsidies and structural measures. This category includes such programs as rural electrification, research and extension, subsidies to farm pension plans, and land development programs.

Since the implementation of the first riceland diversion program in 1969, riceland diversion payments have been an important source of support to rice producers who plant alternative crops. Payments averaged 325 billion yen (\$1.3 billion) in 1982-84 and have declined since the peak payout year of 1982.

Below-average rice yields in 1980-83 and a sharp drawdown of stocks made reducing rice production capacity less urgent in those years.

Deficiency payments are an important source of assistance to oilseed and dairy producers. Payments to oilseed producers come out of the Ministry's general account, while those for dairy producers are made by the LIPC.

The LIPC also administers several programs which provide input assistance to the country's livestock industries. These programs are funded from the LIPC's domestic and import operations as well as from Government grants.

Agricultural insurance for many crop and livestock activities is subsidized by the Government. Insurance programs are administered by Agricultural Mutual Relief Associations established in many rural communities by producers. The Government subsidizes farmers' premiums and Association operating costs.

Although most Japanese agricultural budgetary programs favor producers, there are some consumer-oriented programs. Transfers from the food control account, for example, reduce the consumer tax on rice. Deficiency payments permit cheaper consumer prices for dairy and oilseed products. Subsidies for dairy products and rice reduce school lunch costs for millions of students. Programs related to food quality are often interpreted as being pro-producer but also provide consumer protection.

While Japanese agriculture in general is heavily assisted, it would be inaccurate to think of all Japanese agricultural activities as being heavily subsidized. Levels of assistance vary across commodities. Japan does not have a comparative advantage in grains, as indicated by the high producer subsidy levels calculated for rice, wheat and barley. But assistance levels for poultry and citrus were lower, reflecting the fact that these sectors are more internationally competitive.

Table C--Producer and consumer subsidy equivalent estimates  
for rice, wheat and barley, 1982-84 average

Item	Unit	Rice	Wheat	Barley
Producer subsidy estimates:				
Production	1,000 tons	10,840 1/	726	388
Producer price 2/	Yen/kg	304.9	184.6	170.1 3/
Producer value 4/	Bil. yen	3,305	134	66
Direct payments	"	118	38	19
Adjusted producer value 5/	"	3,423	172	85
Policy transfers				
Direct payments				
--For voluntary marketing 6/	"	118	NA	NA
--Riceland diversion 7/	"	NA	38	19
State control 8/	"	2,367	103	49
Insurance 9/	"	63	2	1
Assistance on inputs and structural measures 10/	"	343	23	12
Total policy transfers	"	2,891	166	81
Producer subsidy equivalent 11/	Percent	84	97	95
Producer subsidy equivalent 12/	\$/m.ton	1,102	945	863
Consumer subsidy estimates:				
Consumption	1,000 tons	11,420 1/	6,086	2,513
Consumer price 13/	Yen/kg	287.4	79.3	56.4
Total consumer cost	Bil. yen	3,282	483	142
State control	"	-2,181	-90	-25
School lunch	"	16	0	0
Total policy transfers	"	-2,165	-90	-25
Consumer subsidy equivalent 14/	Percent	-66	-19	-18
Consumer subsidy equivalent 15/	\$/m.ton	-783	-61	-41

NA = Not applicable. A negative number implies a tax.

1/Brown basis. 2/Food Agency procurement prices. 3/Weighted average for naked and other barley. 4/Equals production times producer price. 5/Equals producer value plus direct payments. 6/Subsidy for marketing rice outside Food Agency. 7/Allocated in proportion to rice area diverted to crop. 8/Calculations based on difference between domestic and trade prices. Price for standard grade of Japanese rice is compared to price of California medium-grain rice plus an allowance for transport costs. Internal support prices for barley and wheat are compared to import unit values. 9/MAFF expenditures on insurance are allocated in proportion to commodity's share of gross agricultural income. 10/MAFF budget expenditures for agriculturally-related land and structural improvement programs are allocated in proportion to a commodity's share of agricultural land. Expenditures on credit, research and extension, disaster relief and farmers' pensions are allocated in proportion to a commodity's contribution to gross agricultural income (see table B). 11/Ratio of total policy transfers to adjusted producer value. 12/ Total policy transfers divided by production, converted into U.S. dollars using the 1982-84 average rate of 242 yen/dollar. 13/ Food Agency resale prices. 14/ Ratio of total policy transfers to total consumer cost. 15/ Total policy transfers divided by consumption, converted into U.S. dollars using the 1982-84 average rate of 242 yen/dollar.

SOURCES: MAFF, Statistical Yearbook; MAFF, Food Agency, Statistics on Rice Prices; International Monetary Fund, International Financial Statistics Yearbook; USDA, ERS, Rice Outlook and Situation; USDA, ERS, Foreign Agricultural Trade of the United States.



Table D--Producer and consumer subsidy equivalent estimates  
for Industrial crops, 1982-84 average

Item	Unit	Soy- beans	Sugar beet	Sugar cane
Producer subsidy estimates:				
Production 1/	1,000 tons	227	560	265
Producer price 1/	Yen/kg	197.0	262.7	357.6
Producer value 2/	Bil. yen	45	147	95
Direct payments	"	66	2	0
Adjusted producer value 3/	"	111	149	95
Policy transfers				
Direct payments				
--Deficiency payments 4/	"	20	NA	NA
--Riceland diversion 5/	"	46	2	0
Price stabilization 6/	"	NA	64	54
Tariff 7/	"	NA	24	12
Insurance 8/	"	1	1	1
Assistance on inputs and structural measures 9/	"	13	9	6
Total policy transfers	"	80	100	73
Producer subsidy equivalent 10/	Percent	72	67	77
Producer subsidy equivalent 11/	\$/m.ton	1,456	738	1,138
	Unit	Soy- beans	Refined sugar	
Consumer subsidy estimates:				
Consumption	1,000 tons	4,775	2,594	
Consumer price	Yen/kg	76.0	261.3 12/	
Total consumer cost	Bil. yen	363 13/	678	
Policy transfers				
Price stabilization	"	0	-198	
Tariff	"	0	-113	
Excise tax	"	0	-42	
Total policy transfers	"	0	-353	
Consumer subsidy equivalent 14/	Percent	0	-52	
Consumer subsidy equivalent 15/	\$/m.ton	0	-562	

NA = Not applicable. A negative number implies a tax.

1/ For sugar beet and sugarcane, refined basis. 2/ Equals production times producer price. 3/ Equals producer value plus direct payments. 4/ From MAFF budget data. 5/ Allocated in proportion to rice area diverted to crop. 6/ Based on comparisons of domestic beet and sugarcane prices with tariff adjusted import prices. 7/ Tariff rate of 43.45 yen/kilogram (refined) multiplied by production. 8/ MAFF expenditures on insurance are allocated in proportion to commodity's share of gross agricultural income. 9/ MAFF budget expenditures for agriculturally-related land and structural improvement programs are allocated in proportion to a commodity's share of agricultural land. Expenditures on credit, research and extension, disaster relief and farmers' pensions are allocated in proportion to a commodity's contribution to gross agricultural income (see table B). 10/ Ratio of total policy transfers to adjusted producer value. 11/ Total policy transfers divided by production, converted into U.S. dollars using the 1982-84 average rate of 242 yen/dollar. 12/ Retail price of packaged white sugar, Tokyo. 13/ Import value plus producer value. 14/ Ratio of total policy transfers to total consumer cost. 15/ Total policy transfers divided by consumption, converted into U.S. dollars using the 1982-84 average rate of 242 yen/dollar.

SOURCES: MAFF, Statistical Yearbook; Statistics Bureau, Management and Coordination Agency, Japan Statistical Yearbook; Ministry of Finance, Japan Exports and Imports, Commodity by Country; International Monetary Fund, International Financial Statistics Yearbook.

## ASSISTANCE TO CROPS AND CITRUS

### *Food Grains*

The high average level of assistance to Japanese agriculture was greatly influenced by the high level of assistance to rice producers (84 percent) and the importance of rice production to the country's total agricultural output. Rice producers received 82 percent of their assistance from the Food Agency, which supports rice prices by an almost total ban on imports and close regulation of domestic procurement and distribution. Budgetary programs accounted for the remainder, with input subsidies and structural measures most important. Subsidies are also paid for marketing rice outside of Food Agency channels.

Assistance to wheat and barley production was also relatively high in 1982-84, with two-thirds coming from Food Agency price supports maintained by restrictive import measures. Additional support came from payments made to divert riceland to these crops.

Consumers of food grains were taxed, but less heavily than producers were subsidized. Rice consumers benefited from transfers that slightly reduced their costs, and students benefited from rice consumption subsidies. Wheat and barley consumers benefited from relatively low priced imports (although higher than the world market prices) which made up a large percentage of total consumption.

### *Industrial Crops*

Assistance to industrial crops (soybeans and sugar) was high, although somewhat less than that for food grains. The principal forms of assistance to soybean producers in 1982-84 were deficiency payments and riceland diversion payments. Domestic Japanese soybean production, a small percentage of total utilization, is mainly for traditional foods. Soybean imports are not restricted and pay no tariff.

The JRSSPSC assists sugar cane and beet producers through a complicated price support and stabilization system that imposes levies and surcharges on imported sugar when import prices are low, and pays rebates to refiners

when import prices are high. It provides different levels of support for sugarcane and beet sugar producers. The assistance from JRSSPSC operations increased during 1979-84 as world sugar prices dropped almost 80 percent. Significant assistance came from a 41.5 yen/kg tariff on raw sugar imports. Smaller amounts of support were obtained from riceland diversion payments (for beets only), and from input subsidy and structural measures.

Consumer taxes on soybeans were negligible. Those on refined sugar were relatively large in 1982-84--an average of 52 percent. The taxing effects of the price stabilization program were most significant in 1982-84. The tariff on imports and an excise tax on consumption (16 yen/kg) also raised consumer prices. Substitution of high fructose corn syrup (HFCS) for sugar led to surcharges on its production after 1982.

### *Corn*

Assistance to corn production was not calculated because Japanese production of

Table E--Consumer subsidy equivalent estimate for corn, 1982-84 average

Item	Unit	Corn
Consumption	1,000 tons	14,016
Consumer price	Yen/kg	36.7
Total consumer cost	Bil. yen	514
Policy transfers		
Tariff 1/	"	-12.4
Total policy transfers	"	-12.4
Consumer subsidy equivalent 2/	Percent	-2
Consumer subsidy equivalent 3/	\$/m.ton	-4

A negative number implies a tax.

1/ A small portion of corn imports is subject to a tariff quota system. Imports within the quota for use in the manufacturing of starch, ethyl alcohol, alcoholic drinks, and corn flakes are exempt from duty. Imports outside the quota are subject to a 15 yen/kg. duty. Imports for other uses are subject to a 10 percent duty within the quota and 15 yen/kg. duty outside it. 2/ Ratio of total policy transfers to total consumer cost. 3/ Total policy transfers divided by consumption, converted into U.S. dollars using the 1982-84 average rate of 242 yen/dollar.

SOURCES: MAFF, *Statistical Yearbook*; Ministry of Finance, *Japan Exports and Imports, Commodity by Country*; International Monetary Fund, *International Financial Statistics Yearbook*.



corn is trivial. Most corn is harvested not as a grain, but as green chop for production of silage.

While corn imported for use in formula feed is exempt from duty, all other corn is subject to tariffs or a tariff quota to protect various domestic industries, such as potato producers (starch) and bonded feed mills. These measures had the effect of a slight tax on consumption, representing about 2 percent of the value of consumption in 1982-84. The surcharge on HFCS, not incorporated in this analysis, would have raised the consumer tax level slightly more.

Table F---Producer subsidy equivalent estimate for citrus, 1982-84 average

Item	Unit	Citrus
Production	1,000 tons	3,322
Wholesale price 1/	Yen/kg	139.4
Producer value 2/	Bil. yen	463
Adjusted producer value 3/	"	463
Policy transfers		
Tariff	"	0 (174) 4/
Price stabilization	"	0 (-390) 5/
Insurance 6/	"	6 (6)
Assistance on inputs and structural measures 7/	"	29 (29)
Total policy transfers	"	75 (-181)
Producer subsidy equivalent 8/	Percent	8 (-39)
Producer subsidy equivalent 9/	\$/m.ton	44 (-225)

A negative number implies a tax. The calculations in parentheses assume that fresh Japanese mandarin are close substitutes for fresh imported oranges.

1/ Weighted average wholesale price for mandarins and summer oranges. 2/ Equals production times wholesale price. 3/ Equals producer value plus direct payments. 4/ Seasonal tariff rates for fresh oranges of 40 percent for December-May and 20 percent for June-November, multiplied by seasonal import volumes. (Trade-weighted average tariff rate for 1982-84 equals 26 percent.) 5/ Based on difference between weighted average wholesale price of Japanese mandarins and summer oranges, and import unit value plus trade-weighted average tariff for fresh imported oranges. 6/ MAFF expenditures on insurance are allocated in proportion to commodity's share of gross agricultural income. 7/ MAFF budget expenditures for agriculturally-related land and structural improvement programs are allocated in proportion to a commodity's share of agricultural land. Expenditures on credit, research and extension, disaster relief and farmers' pensions are allocated in proportion to a commodity's contribution to gross agricultural income (see table B). 8/ Ratio of total policy transfers to adjusted producer value. 9/ Total policy transfers divided by production, converted into U.S. dollars using the 1982-84 average rate of 242 yen/dollar.

SOURCES: MAFF, *Statistical Yearbook*; Statistics Bureau, Management and Coordination Agency, *Monthly Statistics of Japan*; Ministry of Finance, *Japan Exports and Imports, Commodity by Country*; International Monetary Fund, *International Financial Statistics Yearbook*.

## Citrus

Assistance to citrus producers was 8 percent of adjusted producer value, the lowest level for the commodities examined in this article. The effects of the import quota system and the seasonal tariffs for fresh oranges were not considered in the PSE citrus calculation because of reservations about the substitutability of fresh oranges for Japanese fresh citrus. Over the past decade, average annual Japanese wholesale prices for mandarins were about 70 percent of the average landed price of fresh oranges. 4/ This contrasts sharply with the prices of Japanese beef and rice, which are often several times higher than the border price for equivalent products.

If the effects of the import quota system and the tariff on fresh oranges were estimated in the same way as for other commodities and added to the other categories of assistance, the percentage PSE for Japanese citrus would be -39. This would imply that Government policies have a taxing effect on Japanese citrus producers- an implausible result because Japan freely exports fresh, canned and processed (fruit drink) citrus.

We did not estimate the level of assistance to Japanese mandarin producers that results from import quota restrictions on orange juice concentrate. This may be an important source of support to Japanese citrus producers, since more and more mandarin production goes into the processed rather than the fresh market. Mandarin juice is probably not very competitive with orange juice because it has an off-flavor and requires blending with something sweeter to make it palatable.

## ASSISTANCE TO LIVESTOCK PRODUCTS

### Dairy

Assistance to milk producers was greater than that for other livestock products,

4/ During October-May, the wholesale price of the Japanese fruit is almost always below the import price of oranges. In the off-season, the wholesale price of mandarins rises above the price of imported oranges.

Table G--Producer and consumer subsidy equivalent estimates  
for milk, 1982-84 average

Item	Unit	Drinking milk	Manufacturing milk
Producer subsidy estimates:			
Production	1,000 tons	4,269	2,585
Producer price	Yen/kg	108.4	67.5
Producer value 1/	Bil. yen	463	174
Direct payments	"	0	47
Adjusted producer value 2/	"	463	221
Policy transfers			
Deficiency payments	"	NA	47 3/
State control 4/	"	312	123
Insurance 5/	"	9	3
Assistance on inputs and structural measures 6/	"	78	26
Assistance by LIPC 7/	"	4	1
Total policy transfers	"	403	200
Producer subsidy equivalent 8/	Percent	87	90
Producer subsidy equivalent 9/	\$/m.ton	390	320

	Unit	Drinking milk	Milk products
Consumer subsidy estimates:			
Consumption	1,000 tons	4,269	3,722
Consumer price	Yen/kg	209.0 10/	91.8 11/
Total consumer cost	Bil. yen	892	342
Policy transfers			
State control	"	-309	-123
School lunch	"	15	NA
Tariff on natural cheese	"	NA	-7
Total policy transfers	"	-294	-130
Consumer subsidy equivalent 12/	Percent	-33	-38
Consumer subsidy equivalent 13/	\$/m.ton	-285	-144

NA = Not applicable. A negative number implies a tax.

1/ Equals production times producer price. 2/ Equals producer value plus direct payments. 3/ Average deficiency payments for manufacturing milk (22.4 yen/ kilogram) times quantity eligible for support (2.1 million tons). 4/ Calculation compares domestic milk prices with those of imported butter and skimmed milk powder converted to fluid basis, assuming 1 kilogram of milk is equivalent to 37.1 grams of butter plus 76.1 grams of skimmed milk powder. 5/ MAFF expenditures on insurance are allocated in proportion to commodity's share of gross agricultural income. 6/ MAFF budget expenditures for agriculturally-related land and structural improvement programs are allocated in proportion to a commodity's share of agricultural land. Expenditures on credit, research and extension, disaster relief and farmers' pensions are allocated in proportion to a commodity's contribution to gross agricultural income. General livestock programs are allocated in proportion to a commodity's share of livestock output (see table B). 7/ LIPC assistance allocated in proportion to commodity's share of total livestock output. 8/ Ratio of total policy transfers to adjusted producer value. 9/ Total policy transfers divided by production, converted into U.S. dollars using the 1982-84 average rate of 242 yen/dollar. 10/ Retail price, Tokyo. 11/ Fluid equivalent wholesale price, based on assumption that 1 kilogram of milk is equivalent to 37.1 grams of butter plus 76.1 grams of skimmed milk powder. 12/ Ratio of total policy transfers to total consumer cost. 13/ Total policy transfers divided by consumption, converted into U.S. dollars using the 1982-84 average rate of 242 yen/dollar.

SOURCES: MAFF, Statistical Yearbook; MAFF, Monthly Statistics; Statistics Bureau, Management and Coordination Agency, Monthly Statistics of Japan; Ministry of Finance, Japan Exports and Imports, Commodity by Country; International Monetary Fund, International Financial Statistics Yearbook; USDA, Foreign Agricultural Service.



averaging 87 percent of producer value in 1982-84. About three-fourths of total assistance was derived from border measures. Measured in dollars per ton, assistance for production of drinking milk was higher than for manufacturing milk, though the percentage subsidy was slightly lower for drinking milk.

The Japanese dairy producer receives a pooled price which depends on the fluid milk price, and a Government-guaranteed support price for a specified quota of manufacturing-grade milk (milk sold for manufacture in excess of the quota receives a lower price). The fluid milk price is negotiated annually among farmers, dairy cooperatives, and milk companies at the prefectural level, taking into account local demand factors and intraprefectural competition. The national guaranteed price for manufacturing-grade milk is set annually by the Government, taking costs of production into account, and is set substantially below the fluid milk price.

Dairy cooperatives sell milk to processors at a standard trading price, lower than the support price, necessitating a Government deficiency payment to make up the difference. By adjusting the volume of imports through quotas and by buying or releasing stocks, the LIPC maintains the wholesale price of designated dairy products (butter, powdered products, and condensed milk) at between 90 and 104 percent of the stabilization indicative prices. These prices are adjusted periodically to reflect changes in demand and processing costs.

Import quotas, which are adjusted semiannually, apply to evaporated and condensed milk, powdered milk, whey, butter, processed cheese, lactose, and miscellaneous preparations containing mainly milk, such as infant formula. A tariff quota allows duty-free importation of natural cheese not to exceed twice the level of domestic production. *Ad valorem* tariffs ranging from 25-35 percent are applied to most dairy product imports. Casein is the only dairy product imported without restriction.

Consumer taxation levels on dairy products are considerably lower than producer assistance levels. This is explained in part by the relatively low percentage of the consumer

dairy bill attributable to the raw material, i.e., significant value-adding activities occur between the dairy farmer and the consumer. The consumer does not pay directly for budgetary programs. The deficiency payment on dairy products and the school lunch milk subsidy also reduce consumer costs.

### *Meats*

Government assistance to meat producers varies from moderate levels for poultry meat (24 percent of adjusted producer value) to heavy assistance for beef and pork (52 and 49 percent, respectively). The proportion of assistance derived from border measures is greater for beef and pork (78 percent) and less for poultry meat (63 percent).

A severe land constraint has made it difficult for beef producers to make their operations as efficient as those of poultry producers, who depend far less on land resources. The shortage of land available for cattle raisers is partly the result of Government policies. The Land Law of 1952, amended in 1970, 1975, and 1980, has not encouraged significant farmland consolidation, while the rice policy has channeled and maintained excessive resources in rice production. In 1982-84, beef producers were assisted by a 25-percent tariff, surcharges, and quota restrictions on beef imports.

Pork producers benefited from a variable levy that raised import prices to a standard import price (SIP) for carcass meat and a multiple of the SIP for cuts. Poultry producers were protected by a 14-percent tariff on whole chickens and a 10-percent tariff on chicken legs.

## CONCLUSIONS

The PSE and CSE calculations for 1982-84 confirm the fairly common perception that Japanese agricultural producers are heavily assisted and Japanese consumers of agricultural products are heavily taxed. Based on a weighted average PSE for all covered commodities, assistance to Japanese agriculture in 1982-84 was on average 69 percent of adjusted producer value, the highest among developed countries. Levels of assistance varied across commodities. While

Table H--Producer and consumer subsidy equivalent estimates  
for meats, 1982-84 average

Item	Unit	Beef	Pork	Poultry meat
Producer subsidy estimates:				
Production 1/	1,000 tons	504	1,427	1,244
Wholesale price 2/	Yen/kg	1,477.3	655.7	296.7
Producer value 3/	Bil. yen	745	1,004	369
Direct payments	"	0	0	0
Adjusted producer value 4/	"	745	936	369
Policy transfers				
Tariff	"	68 5/	354 6/	55 7/
State control	"	233 8/	NA	NA
Insurance 9/	"	8	16	5
Assistance on inputs and structural measures 10/	"	73	78	25
Assistance by LIPC 11/	"	4	8	2
Total policy transfers	"	386	456	87
Producer subsidy equivalent 12/	Percent	52	49	24
Producer subsidy equivalent 13/	\$/m.ton	3,165	1,320	289
Consumer subsidy estimates:				
Consumption 1/	1,000 tons	703	1,665	1,347
Consumer price 14/	Yen/kg	2,194.6	1,064.2	491.1
Total consumer cost	Bil. yen	1,543	1,772	662
Policy transfers				
State control	"	-325	0	0
Tariff	"	-95	-414	-59
Total policy transfers	"	-420	-414	-59
Consumer subsidy equivalent 15/	Percent	-27	-23	-9
Consumer subsidy equivalent 16/	\$/m.ton	-2,469	-1,027	-181

NA = Not applicable. A negative number implies a tax.

1/ Carcass weight. 2/ Weighted average wholesale carcass price for dairy and Wagyu beef in Tokyo and Osaka markets; wholesale carcass price for medium grade pork, Tokyo market; wholesale price for Grade A small chicken, Tokyo market. 3/ Equals production times wholesale price. 4/ Equals producer value plus direct payments. 5/ Based on 25 percent tariff rate. 6/ Calculated effect of the variable levy on pork based on difference between Japanese average wholesale price, carcass basis, and pork price in United States (wholesale cut-out value, 165 lb carcass, U.S. No. 2 grade, carlot basis), adjusted for ocean freight costs. 7/ Calculation based on trade weighted average tariff rate of 17.3 percent. 8/ Based on difference between Japanese wholesale price for dairy beef and wholesale price for U.S. Choice steer beef, adjusted for ocean freight costs and an import duty of 25 percent. 9/ MAFF expenditures on insurance are allocated in proportion to commodity's share of gross agricultural income. 10/ MAFF budget expenditures for agriculturally-related land and structural improvement programs are allocated in proportion to a commodity's share of agricultural land. Expenditures on credit, research and extension, disaster relief and farmers' pensions are allocated in proportion to a commodity's contribution to gross agricultural income. General livestock programs are allocated in proportion to a commodity's share of livestock output (see table B). 11/ LIPC assistance allocated in proportion to commodity's share of total livestock output. 12/ Ratio of total policy transfers to adjusted producer value. 13/ Total policy transfers divided by production, converted into U.S. dollars using the 1982-84 average rate of 242 yen/dollar. 14/ Average household expenditure on meat divided by carcass weight equivalent of quantity consumed. 15/ Ratio of total policy transfers to total consumer cost. 16/ Total policy transfers divided by consumption, converted into U.S. dollars using the 1982-84 average rate of 242 yen/dollar.

SOURCES: MAFF, Livestock Bureau, Meat Statistics in Japan; MAFF Statistical Yearbook; Statistics Bureau, Management and Coordination Agency, Monthly Statistics of Japan; International Monetary Fund, International Financial Statistics Yearbook.



heavily assisted sectors like grains and dairy predominate, there are some sectors like poultry and citrus that receive much less assistance.

The PSE and CSE calculations in this article are based on many assumptions and should be interpreted with great care. Some of the assumptions are and will continue to be subject to debate. For example, the manner in which general agricultural programs are allocated across commodities can have a significant effect on the percentage PSE for an individual commodity. In this study, general support for land and structural improvement (table B, 1a and 1b) is allocated to commodity sectors in proportion to the amount of land in those sectors. If it were allocated on the basis of a sector's contribution to gross agricultural income, for example, it would raise the PSE's for non-ruminant meats and lower those for grains.

Although PSE and CSE estimates were not prepared for 1985-86, assistance levels almost certainly were even higher then. In a context where border measures provide most of the assistance to agriculture, both declining world commodity prices and an appreciating yen widened the gap between domestic and trade prices. Measures taken by the Japanese to freeze support prices and scale back certain budgetary programs were not enough to offset the increasing assistance from border measures. Rice is a good example. Its support price has been fixed at 342 yen/kg since 1984, when the Japanese rice price was about 4 times the price of California rice (medium grain, bagged at mill). Now the unchanged Japanese price is more than 6 times the California price, because of a 3-percent drop in the California price and a more than 50-percent appreciation in the yen.

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